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THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

W. BRAITHWAITE,

LECTURER ON OBSTETRIC MEDICINE AT THE LEEDS SCHOOL OF MEDICINE, ETC.

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VOL. XVIII. JULY—DECEMBER.
1848.

LONDON:

SIMPKIN, MARSHALL, AND CO.

EDINBURGH: OLIVER AND BOYD. DUBLIN: HODGES AND SMITH.

MDCCCXLVIII.

D. I. ROEBUCK, PRINTER, 14, BANK STREET, LEEDS.

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PRACTICAL MEDICINE,

&c. &c.

DISEASES AFFECTING THE SYSTEM GENERALLY.

Art. 1.—ON THE NATURE OF EPIDEMIC AND MALARIOUS DISEASES.

By Sir James Murray, M.D.

[The following is an abstract of the conclusions drawn by Sir James Murray from a series of investigations and experiments made by him some years since; and from which he has been led to abandon the ordinary doctrines of malaria.]

1st.—I consider that the exciting cause of epidemics, which is called *malaria*, is not "bad air" at all, as the name implies.

2nd.—That marsh miasms, gases, or effluvia of vegeto-animal matters or putrid emanations, are not, as is commonly supposed, the exciting causes of agues or other diseases called malarious.

3rd.—That in denying the usual doctrine of marsh miasmata, I do not deny that general "malarious" ailments proceed from terrestrial, paludial, or atmospheric emanations of active, dangerous, and subtile qualities.

4th.—But I consider these noxious emanations are disturbed *electro-galvanic currents* and accumulations, sometimes positive, sometimes negative, causing a want of electrical equilibrium in human bodies.

5th.—That these electric agencies are untowardly excited or set free from soils of fens or marshes, drains and sewers, by the known effects of evaporation, chemical action and infiltration of decomposing substances and putrid deposits, or from foul waters, among minerals, ores, metals, and dissimilar strata of soils and sub-soils, and also in wet lands, or during rainy seasons, after long-continued absorption by the earth of solar heat.

6th.—That as it is notorious that there are more insalubrious dry and high places in the Roman Campagna affected with malarious diseases than wet and low situations, I consider that in such elevated and arid spots, long noted for insalubrity, there is emitted from the earth's surface an untoward emanation of electro-galvanism, with its concomitant lethal agent called ozone, set free

by causes operating within the soils of that locality, either by the juxtaposition of strata of dissimilar materials, acting electrically upon each other, or by the infiltration of subterranean streams or mineral waters, and by internal heat and consequent liberation of steam-electricity ; or by some other agents, acting upon materials contained in the ground, analogous to the manner in which we operate upon artificial substances in a galvanic apparatus.

7th. – That in some of the thousand ways in which electro-galvanism is produced in the earth or air, its undue influence (under certain circumstances) disturbs the natural electricity of human beings, particularly when recumbent in contact with the ground, or on beds near the earth.

8th.—That this disturbance, either in the relative quantity of electricity itself, or in the due proportion of the positive or negative (fluids,) alters the condition and functions of the human nerves, and probably the relative state of the particles, and the polar relations of the atoms or corpuscular molecules, and at all events is capable of exciting or depressing the vital functions, and of acting chemically on the circulating animal fluids. This is obvious near rivers, and during east winds, the agency of passive or negative electricity, then, and there, inducing diseases of debility.

9th.—That these untoward galvanic agencies account more clearly for the specific cause, specific symptoms, and specific cures of some classes of complaints, such as intermittents, than the hitherto assumed action of *marsh miasmata*, which are supposed to be so various in their nature. In regions in which there are no fens or marshes, such as the Island of Ascension, &c., the agues incident to strangers are the same as where morasses are extensive; in both circumstances the disorders occur at particular seasons, are confined to particular situations, and require particular and identical treatment.

10th.—That the doctrine of marsh miasms is untenable, because malarious diseases attributed to them are common where there are no marshes, and because domestic animals are in general perfectly healthy, whilst human beings fall by thousands, which surely would not be the case where noxious miasm inhaled into the lungs during respiration.

11th.—The immunity of lower animals seems to rise from the comparative density of their integuments, rendering them less liable than men to the influence of electric accumulations, galvanic currents, or the disturbance of the (natural) fluid in them by induction. The hairs or wool being wet at night, serve as pointed conductors, which diffuse or dissipate opposite electrical currents into the earth or air, and prevent their effects on the small brain and nerves of domestic animals.

12th.—That the general immunity of blacks (even those who have long lived in our climate) from malarious diseases, appears to prove that inspiration of malarious air by the lungs, is not absolutely noxious, and that the cutaneous texture, oily secretions, and non-conducting varnish of their daily anointing and painting, render

their skins less susceptible, or more repulsive of electric agencies, than the integuments of whites. The black colour, as it absorbs heat sooner than white, may also make a difference in the electric conducting power. Even a black silk thread, ribbon, or stocking, presents very different electrical phenomena from those of white twist, or white fabrics of the same texture.

13th.—That this doctrine of the electrical origin of malarious diseases enables us to approach much more nearly to salutary means of prevention than the old theory of inhalation of miasms wafted in the air can lead us to apply preventive measures against.

14th.—That, with this view, in order to enable colonies to be planted upon the Campagna di Roma, and other insalubrious or desolate regions, I proposed to *drain some suitable sites thoroughly;* to place a horizontal zinc or copper rod or tube in each drain; to connect these cross-wires or tubes with two or more upright conducting or lightning rods; to carry away excess of electricity outside the habitation, and not to permit its passage up or down through the house or tenement, or through the bodies of its inmates.

15th.—That many trials have convinced me, that houses, when built upon such insulated platforms, floored with non-conducting compost of asphalt or bitumen, and protected above and below from electric currents by copper tubes or wires, are comparatively healthy in all situations. These insulated chambers prevent the natural electricity of the bodies of men from being untowardly augmented, diminished, or irregularly distributed through them, by the *abstracted* or the *excited* electricity either of the earth or of the air, as I have many times witnessed.

16th.—That as many failures have occurred to common protecting rods for want of moisture in the ground, in dry seasons and arid elevations, I have found hollow pipes such as our copper gas-tubes, to present several advantages as lightning rods: by terminating below in the horizontal pipes or drains containing water, and by being always wet inside by the rain contained in them, their efficiency is secured.

17th.—That having secured a perfectly *drained area or platform* for a house or houses, I lay over the arches of the drains a solid floor of Roman cement, on brick or stone-work; and when the tenement is erected, and this platform is perfectly dry, I make it hot by a fire laid upon it. Whilst still hot, I spread over it a melted layer, about four inches thick, of asphalt and pitch, mixed with fine dried and sifted powder of Spanish clay. This makes a floor which does not crack, and which is almost impervious to moisture, or to passes of electric currents, either from the air above, or from the earth below.

18th.—That in building the walls in the first instance, a layer of sheet lead is laid in pitch and tar compost, on a level with the intended floors, with which layer the insulating compost above

mentioned is made to unite, when making the non-conducting floor after the building is finished.

19th.—It is too tedious to detail in this abstract, but I have devised a ready insulating medium for existing walls and buildings, and also for raising small tubes or pipes from the house-drains into the air, higher than the chimnies of houses, or spires of churches, to serve as efficient *lightning rods*, and allow odious smells and hydrogenous gases to be blown away in the higher regions of the atmosphere.

20th.—This principle of insulating the areas or ground upon which the buildings are erected, is intended for habitations, hospitals, barracks, and all public or private edifices, in malarious localities, and particularly in those places where insalubrity is prevalent and dangerous. In such desolate situations, the inmates may in a great degree be preserved from the direct action or disturbance of electric passes, up or down, through the apartments or places of rest.

21st.—That this precautionary insulating measure is also well adapted to diminish the damp prevailing in many basement stories of houses, and, by rendering the air of the apartments dry, and therefore non-conducting, is calculated to diminish the danger of moisture, and many of the other evils commonly associated with the old or current theory of marsh miasms.

22nd.—That for so-called malarious districts, wet floors, or low places, a thick layer of dry lime, fresh from the kilns, produces very favourable galvanic changes; abates the low indication of negative electricity of these places for the time ; puts a speedy end to several chemical changes going on in sewers and soils; and tends very much to ameliorate the atmospheric condition of the insalubrious habitations, in so far as electro-galvanic currents and accumulations are concerned. Dry lime *is a non-conductor*, and has been useful in absorbing the moisture of damp rooms, and thereby diminishing their power of carrying electric currents to or from the inhabitants.

It had long since been proposed by Dr. Priestley to electrify a great number of patients at once, by placing them in a chamber raised upon glass feet.

Mr. Ellis recommended, in 1831, that persons seized with cholera should receive their medical treatment in beds placed upon glass bottles, and be supplied with their remedies in glass vessels. All these ingenious suggestions were proposed for the use of persons already diseased; but my desire is to *prevent persons from being epidemically diseased at all*, as far as can possibly be accomplished. The above able gentlemen have suggested means of *cure;* I recommend measures of *prevention*. Their propositions were never carried into effect; whereas my insulated houses were *tried*, and saved the inmates from attacks of disease in places where labourers, unprotected, fell by dozens in faintings and fevers, from want of sufficient electricity to sustain the natural balance. Persons insulated

by a very bad conductor, such as a floor of cold asphalt, and by *clean dry flannel, or other insulators*, cannot readily communicate electricity to the earth, nor receive electricity from it, if the air of the apartment be dry, and free from filth, mist, or vapours.

The following may serve to convey an outline of my reasons for insulating public and private buildings:—A cloud strongly charged with positive electricity over the individual, will attract his negative electricity upwards, and repel his positive electricity towards the earth. After the cloud is discharged, passes away, or is neutralized, the two elementary fluids rush towards each other into the centre of the person's body. The opposite currents of the two elements often kill instantly. In milder cases, such electrical disturbance affects the animal fluids, as it affects beer in the cellar, or milk in the dairy.

I consider that men's bodies, between the atmosphere and the earth, represent the chain of a Leyden jar or of an electric machine, conducting negative electricity from the outside of the jar to the ground, or supplying positive electricity from the earth to the rubber. Were the surface of the floor well *insulated*, the chain could not readily give or receive the currents which otherwise pass through it. Men, in like manner, may be saved in towns, camps, and houses, from being made the vehicles of currents which are quite capable of deranging the mechanical order, the chemical action, and the physical function of every atom and organ of the human body.

23rd.—That "*marsh miasm*" is a misnomer, and a weak invention to cover want of knowledge—a "*mysterious emanation*," supposed to arise like a spirit from the fenny deep, and to infect air, soil, and water. A "*pestilential something*," reputed to be *malaria* itself. But no chemist has yet separated this "*germ* of *evil*" from the marshes in which it is thought to be engendered.

24th.—That early in life a believer in these misty delusions of *marsh poison*, I did hope that improved tests and apparatus would arrest the "*gas*" and detect its composition. But continued trials during twenty years all failed to render it tangible. As yet, there has been no analysis of this "*pest*," although its sway is dreaded alike in the lowest valleys and on the highest hills.

25th.—That no doctrine can be more mischievous than this of "*masms*," for if there be such a poison *sui generis* wafted about in the air we breathe, there can be no precaution by which we may hope to ward off such an enemy whilst it continues unknown and unseen.

26th.—That no harm can result from any attempts to overturn the faith that *was* in us, and to believe in some other power capable in various ways of being felt, seen, heard, or understood. If, therefore, we come to ascertain that electricity at rest, or electricity in motion, or that some of its modifications—galvanism or magnetism —can induce *a broken balance of electrical equivalents* in animals and plants, we may more easily devise means of warding off a *known power*, and peventing its transit through the conducting materials of living beings.

27th.—That whilst the relations of electrical influence to the laws of life are universally admitted, the very existence of marsh miasms may be well denied. An able writer observes, that "their nature is not known; neither their physical nor their chemical properties have been ascertained. Even their presence is known only by their effects on the human constitution; no other test of their existence has yet been discovered. Some conjecture that this poisonous gas is carbonic acid, others that it is azote and oxygen; but chemistry has yet to discover whether this poison be simple or compound, as well as by what test, other than its action on the human body, its presence may be determined."

Were miasms of ponds and fens, of drains, sewers, and swamps, the exciting causes of cholera or agues, this pestilence, wafted in the fleeting winds, would be just as variable in its effects as the wind itself. We should then have every possible shade of suffering, but no parallel epidemics. Every variety of *inhaled poisoning* would prevail at the same time and place. But, on the contrary, intermittents and all symmetrical diseases induced by symmetrical causes, are similar in character, and no two of them prevail in the same place and at the same time. Definite causes produce definite effects, and it was justly observed in the late sanitary reports, "that cholera and typhus seldom, if ever, rage in the same locality simultaneously, although the fever track and the cholera track are identical.

28th.—That by no hypothesis deduced from the theory of *miasms* can we account for the *known* fact, that in the Campagna di Roma, in Tuscany, Ceylon, and other places, localities are pointed out where malarious influence is insulated, and limited to defined spaces —as to one side of a hill, one range of a street, one end of a field, or even to one particular habitation. *Malaria*, tossed about in the air of Rome, will not account for one portion of the *Via Babuina* being infected, and not the other; nor will it explain why the dry and clean Pincian Hill, and the beautiful Monte Mario, are *unhealthy*, whilst the marshy streets and courts below are salutary; why the rich and well-planted grounds of the villa Borghese are insalubrious, whilst the flooded Piazza Navonna, the Velabra, and the Jewish quarter, are safe, like other crowded towns of equal temperature or similar sanitary regulations.

29th.—That it is well known there are, even in these climates, numerous small spots circumscribed by a distinct boundary, which have been noxious for ages. If this diseased state be owing to a want of equilibrium of galvanism in the earth or the soil of such places, it merits a series of rigid trials, to examine their condition to the utmost extent, and to divert or cut off the sources of unequal galvanic influence, where unduly exerted. It is also known, that, in various situations, physicians cannot readily cure or relieve certain nervous or rheumatic complaints, owing to causes which are undoubtedly electrical. This renders the removal from such localities absolutely necessary to sensitive patients, a change of air to whom is *change of electricity*.

30th.—That the condition of low decomposing or fermenting places themselves might in many instances be improved by the means hereafter recommended; but to carry out in detail experiments and plans on a sufficient scale should be the work of *governments* or *municipalities*, not of an individual. To arrive at conclusions of absolute certainty, experiments require to be instituted on an enlarged system. It is, however, fortunate, that the chief means here pointed out will well repay their cost and trouble by the diminution even of the former imputed causes of "*malaria*." There is, therefore, the less necessity to dispute about the existence or non-existence of *marsh miasms*, if we can prevent or abate the desolation attributed to their influence in cities, towns, and marshy districts.

31st.—That whilst the nature and even the very existence of *marsh miasm* as a poison, *sui generis*, are without proof, demonstration, or reasonable explanation, the connexion of electricity with all the agencies of nature is unbounded and undeniable. Its power is equal to the production of every effect here suggested. It is able to separate and again unite the elements of water—to tear metals from their oxides—to shake the clouds in thunder, and to operate in developing the evolutions of crystals. In its form of currents, it contorts the muscles of lifeless animals, and it flies, in its condensed form, instantaneously through a circuit of many persons, producing a manifest shock in them all.

32nd.—That the physiological effects of galvanic electricity are such as scarcely to admit of any limit to its endless influence. We are warranted, from analogy, to ascribe its agency in passing through the human body to a *sudden disturbance of the electric equilibrium—to an energetic or a depressing agency on the nervous system—to a partial decomposing or disorganizing power over the polar or chemical state of the atoms of our solids and fluids, and to oscillations of them.* Its manifest phenomena in man are awful to contemplate. A small charge sent artificially through the spine compels the person to fall to the ground, deprived, for a short time, of all muscular power. If sent through the diaphragm, that muscle contracts, causing the person to emit a loud shout, or an involuntary laugh. Through the limbs, a dull pain directly affects the joints, owing probably to the resistance which the force meets with in passing from one bone to another, like the *ticking* in nerves, owing to obstructions in their conducting power. Through the head, the sensation produced by a slight charge is that of a stunning blow, with temporary blindness, loss of memory, and confusion of ideas; or through the body of an eel, it kills that creature, so tenacious of life. Even after death its action is evident, a human being killed by thunder rapidly blackens and putrefies.

33rd.—That we observe, by experiment, how various is the quantity of electricity required to charge different persons; the amount is shown by obtaining sparks of the same size from separate individuals when insulated. Even their capacities for electricity, and their conducting powers, vary considerably. It is

little wonder, then, that endless diversity prevails in the ailments and sensations of persons who are so sensibly affected by what they call the state of the weather, damp, and change of winds. These three enemies are supposed to be the actual perpetrators of injuries, which, of themselves they have not the power to inflict. *They are only vehicles of the disturber:* they are not the *real exciting cause, they only conduct it.* They convey through the cold cottages of the poor, and the warm mansions of the rich, that invisible, subtle, disturbing agent, galvanism, which speedily probes and searches the bones, muscles, joints, and inmost organs of invalids, deranges the nervous functions, affects the animal spirits, and acts magnetically on the protoxide of iron in the veins.

34th.—Nature employs but few means to accomplish many ends. Electricity can produce thousands of effects--it is heat, light, galvanism, magnetism, chemical action; or it is convertible into them. Its modifications constitute, in my opinion, that universal *æther-film* which encircles all particles of matter, and preserves, by its powers of attraction and repulsion, the ultimate molecules of all bodies in their natural, relative connexion and condition.

35th.—That it is very probable that this all-pervading agent is the force, or cause of the forces, called *vis vitæ* and *vis insita:* already it is recognized in certain animals as the *vis nervea.* Electrical *aura,* also, seems to be the *aura epileptica.*

36th.—That as a definite proportion of electricity belongs, and is peculiar to everything, and as a natural quantity of it is essential to health, so, any excess, deficiency, or derangement of it causes corresponding derangement in living bodies. As the integrity of specific atomic relation is essential to the identity and preservation of all beings, so the natural integrity of electrical equilibrium cannot be broken, or have its balance disturbed, without an equal disturbance in all the functions influenced by definite electrical agency.

37th.—That observations and experiments give reason to believe that there is a certain *defined amount, plus* or *minus,* (above or below the natural standard of electric agency,) capable of producing certain *defined diseases* in susceptible individuals. In such localities as have their natural quantity of electricity reduced, augmented, or disturbed to the *specific degree,* calculated to induce *specific disorder,* the effects of such derangement will be proportioned to the cause. The particular kind of epidemic will depend upon, and be equivalent to, certain assumed points in the scale of disturbed electricity.

38th.—I have noticed, that this regulator of the balance is broken on many occasions, *long before* the consequent break of health sets in; that the loss of electric equilibrium in the earth and air precedes the loss of healthy equilibrium in man; that, like the supposed incubation of some disorders, the reaction consequent upon the oscillation of animal molecules does not always advance, *pari passu,* with the occasion of their agitation; that in certain constitutions the effects occur several months later than in others; that when the epidemic has set in, after the waves of positive or negative electricity

had passed over or through a place, the epidemic has manifested itself long after the terrestrial or atmospheric condition of the district had been restored to a neutral state, either by the equalizing power of thunder between *plus* and *minus* clouds, or by both these being blown away by currents of the air.

39th.—That it is only by careful atmospheric and telluric examinations we can learn the advent and cause of epidemics *before their invasion;* and that after they appear we may sometimes find the electricity of the situation restored in its due quantity or balance.

40th.—That from twenty years' practical experience in a meteoric and marshy district I have concluded that, as electricity, in all probability, is heat, or the active cause of heat, its laws hold similar relations to those of caloric. That as cold is the absence of heat, the same electrical ratio applies to cold also—that as water boils at 212°, strong nitric acid at 248°, oil of turpentine at 314°, sulphuric acid at 620°, and mercury at 662°—so, certain *steps* of electrical alterations or disturbances will reach certain peculiar epidemic consequences or points. Each particular *step* produces its own particular results in susceptible persons, and sooner or later, according to their aptitude or susceptibility.

41st.—That, as we are taught by experience, some people are scarcely liable at all to impulses of galvanic inequality—some are very slightly so, and others slowly affected, or only after long intervals. We have also seen that some persons escape altogether the shocks or oscillations of galvanic passes; others slightly feel their premonitory signs or symptoms; whilst some withstand the *concussions* or derangements for weeks or months. I cannot believe that similar differences would result were *marsh miasms*, or poisons, (inhaled by breath) the exciting cause; such active poisons, if in existence, and capable of destroying strong men in a few hours, would bring every human being within their reach under their destructive sway, without omission or delay.

42nd.—That as free electricity very generally prevails in the air of most places, it may be asked, why *cholera* in man, and *blight* in vegetables, do not commonly prevail at all times. To this I reply, that the integuments, even of delicate human beings, are not susceptible of ordinary or slight electric passes, unless the part be moistened. The whole surface becomes moistened in hot climates by the dew at night, and hence I think that cholera or agues invade people at night, particularly toward morning, as we know that negative electricity reduces men in the rice-lands of Italy, and in the Maremma, to the most awful state of disorder. But were the cause, as said to be, *miasms*, extricated from fens by the heat of the sun, their lethal violence would, on the contrary, assail all persons by day. As multitudes labour in the fields *by day*, multitudes would fall by poison; but thousands escape the pest, provided they do not sleep in the air or on any ground floor *by night.*

43rd.—That I believe, to produce *certain grades* of epidemics, *certain stages* of galvanic disturbance must be in operation. But it is *seldom* that such rates of derangement traverse the atmosphere or

globe, consequently, we have not cholera or intermittents in all places or at all times, although electricity, at rest or in motion, may be variable or disturbed to a certain extent in every situation. As we reach *definite degrees* of heat, to boil water or to freeze it, we must contend with a *definite degree* of disturbance in galvanic force. fit to inflict epidemic catarrh, and a *different definite point*, sufficient to occasion epidemic cholera.

44th.—That I consider, to cause specific diseases similar in all respects and parallel in progress, some specific agent must be in operation; such agent must be capable of producing *peculiar symptoms or signs of derangement*, by exerting *peculiar proportions or quantities* of disturbing actions.

45th.—That the latent galvanic equivalents in living things are seldom so much deranged as to damage the laws of life; mild points in the scale of disturbance inflict only mild corresponding ailments. Were we to assume by way of illustration, a symbol of figurative quantity, as the neutral, latent, or natural equivalent of atomic electricity in a man, and state the standard amount (say) at 10,000, or any other number of equivalents,then we might infer that if ten degrees be added, abstracted, or *disturbed*, some local epidemic would result to persons similarly struck in that situation at the same time. As the cause (only ten degrees) is not considerable in this supposed case, so the effects will be mild in proportion. Periodical and nocturnal returns of old pains, nervous complaints, neuralgia, or nightly rheumatism, would probably be the symptoms of disorders corresponding to such points of definite or atomic galvanic alteration.

46th.—That when the east wind (almost always passively electrified) prevails—when stagnant rivers, ponds, sewers, cess-pools, filthy streets, and drains, fens or marshes, fed by charges of *decomposing* matters, create *galvanic troughs* of great extent and active energy—when their *intense emanations* flow in currents, and are linked to people by electric chains of vapour, damp air, wet floors, or filthy garments, then, as the disturbing forces are severe, the loss of electric balance is severe also. Should the derangement of the balance amount to forty, fifty, or sixty degrees out of the normal quantity, these points will correspond with the ratio of broken balance which may stand in relation to catarrh, epidemic influenza, diarrhœa, dysentery, fevers, and other local epidemics, similar in character under similar circumstances.

47th.—That when millions on millions of horse-power of galvanic forces are hourly evolved in the sultry morasses and festering deltas of the hot east—when strata after strata of our globe are daily galvanised by communication or induction—when miles of excited earth transfer conduction to adjoining miles—when electric wave follows wave, flowing round in a zone of resistless disturbance—when a *belt* of such stupendous streams of untoward galvanism encircles the earth itself, which is the great source and reservoir of of electricity, then it is no wonder that plants, fishes, birds, beasts, and men, placed over such an electrified girdle of the globe, should suffer, each according to their susceptibility and organization, and

to the extent or continuance of oscillating currents. A hoop or circumference, broader than the peninsula of India, conveying long-continued electric concussions, and steam electricity under land and water, will carry the disturbing range to eighty, ninety, or one hundred degrees, every series pointing to different series of disorders.

48th.—That there is reason to believe a disturbed cincture of the earth arrives and retires with the revolutions of this planet. Perhaps the time may come when the dreaded advent of these revolving sources of disturbance may be predicted by calculation, as the march of the cholera was estimated, in 1832, at the rate of about ninety miles per month.

It is, therefore, when the excited air above, and the exhausted earth below, attract and repel long interchanges of galvanic emanations, that greater and more dangerous pathological degrees of disturbance ensue, fit to derange the scale to the point of such vast loss of balance, as to indicate the exciting causes of typhus fever, sweating sickness, bubo plague, yellow fever, black vomit, and black death.

49th.—Within and around our cities and towns we contrive the most extensive BATTERIES for extricating galvanism: we establish currents and counter-currents of the electric (fluid) and of its *vehicles*—viz., the noisome gases escaping up our pipes and drains. These foul airs rush up into our apartments, conducted by walls and floors, and carrying up torrents of overpowering galvanic emanations. The walls and atmosphere of the rooms being in general positively charged, induce negative passes from the human bodies within their range, and from the moist earth below, attract the electricity of the persons present, if of an opposite, and repelling it if of the same, kind.

50th.—That instant *and efficient* municipal means should be adopted to TAP and release the air, *ozone*, and other confined gases from our house-drains, sewers, and cesspools. Sewers near buildings can easily be *tapped* by inserting copper or iron pipes, and adapting existing spouts, so as to bring all the rain-water into the drains, and to allow dangerous vapours, loaded with *ozone*—another lethal product of electricity—and also undue electricity itself, to escape up the air-conduits. These air-spouts should be fitted to the buildings *outside*, at proper intervals, and ought to be inserted into the arch, roof, or top of the sewers, and be well secured in their upright position to walls, chimneys, steeples, or posts, so as to reach as high as possible above the range of the highest edifices. These air-spouts would secure the most perfect sanitary reform that sanitary laws can accomplish—viz., preventing filthy odours, and diverting and dispersing among the clouds disgusting gases and disorganizing electric concussions, or decomposing currents.

Lancet, Sept. 2, 1848, *p.* 250, *and Sept.* 23, *p.* 341.

[Sections 51 to 57 are occupied by Sir James in stating some facts upon which his conclusions are founded. He states that during many years he observed the diseases of an unhealthy district, in which a

muddy river, receiving all sorts of impurities from a manufacturing town, formed an immense putrescent reservoir, from which all sorts of abominable exhalations continually proceeded. But he found that the alternations of the epidemic diseases which attacked the inhabitants exposed to these effluvia, bore a distinct relation to the variations in the electric condition of the atmosphere. He found too, as he states, by thousands of voltaic experiments, that the stagnant water spoken of, formed a "vast galvanic trough." He says,]

Upon being satisfied, by many trials and observations, that electro-galvanic *disturbance or want of equilibrium* was at least a *principal exciting* cause of these periodical or symmetrical diseases, I watched their origin and progress narrowly, and made many experiments on the waters, soils. and air of filthy and damp localities.

58th.—The vast number of chemical trials which I conducted in these marshy valleys, all demonstrated, as far as can be proved by negative evidence, that there is no such *peculiar morbific agent (per se)* as that which is understood by the name of *marsh miasm* or paludial malaria. In most of these experiments, animal exhalations, *supposed putrine*, and organic remains, were traceable, with more or less of ammonia, and all the gases evolving in low fens or clay soils. But ammonia and all the other impregnations were found in most regions of the air in Ireland, England, France, and Italy, where no epidemic at the time prevailed.

59th.—These results led to the conclusions which were afterwards confirmed by more extended researches in Italy. I found that when human beings recline upon moist ground, or on beds placed upon it, their *natural, latent, or neutral electricity* is disturbed or decomposed by the extensive surface of the body exposed to telluric attraction and repulsion of galvanic currents, conducted by the fatal chains of damp walls or floors, stagnant drains, filthy beds, or soiled clothing.

60th.—In the places described, extensive evaporation, and energetic chemical action during the day, charged the atmosphere of the place with positive galvanic fluid. This surcharge passed through the moist conducting bodies of the people, into the earth, attracting their *negative* and repelling their *positive* electricity. Again, when during the diminution of the electric fluid of the air, before sunrise and sunset, the effervescing earth transmitted its excess upwards, through the persons so exposed, the neutral (fluid) in their bodies was disturbed, or the positive (fluid) was attracted to one side or extremity of the bodies, and the negative fluid repelled to the other side; and thus a process of attraction or repulsion exerted untoward oscillation in the bodies, brain, and spinal cord, and in particular, in the great sympathetic system.

61st.—From observations and analyses, I concluded that the insalubrity called "*malaria*" is neither a specific and peculiar miasm directly from water, nor land, nor mist, nor vapour alone; but that there is *something else in action* which may have a certain

degree of relation to all these things, and therefore the former are suspected of being the *whole primary* cause, whereas I consider them but *secondary* agents.

Lancet, Oct. 21, 1848, *p.* 444.

2.—ON THE TREATMENT OF WEST INDIA REMITTENTS AND INTERMITTENTS BY QUININE.

By Dr. D. Blair, Demerara.

When quinine is taken by an adult to the extent of thirty or forty grains, it produces certain cerebral symptoms, the constituents of which are a ringing noise in the ears, and more or less deafness.

This set of symptoms, where there is no idiosyncrasy, indicates the saturation of the system by the medicine, as ptyalism does mercury, and may be conveniently known by the name of *cinchonism.*

Rare instances occur in which hyper-cinchonism is induced by a very few grains of quinine, accompanied by many nervous symptoms, and formication so severe as to proscribe the use of the remedy. In some—and this may occur in cases which had hitherto been normal—cinchonism has not been induced till after the administration of seventy-two grains of quinine.

Cinchonism is not peculiar to quinine: by other vegetable febrifuges, such as salicine, angustura bark, and biberine, cinchonism can be induced, but not with the same certainty as by quinine, neither in the same uniform series of phenomena, neither with the same harmlessness.

Cinchonism seldom lasts longer than twenty-four hours, except in some cases of anæmia, in which the writer has known it continue upwards of a week.

Quinine has been prescribed by the writer to patients of both sexes and all ages, and where ascertainable, almost invariably to cinchonism, during thirteen years, and probably to the extent of several thousand ounces of the sulphate; and during that time he has seen no case of danger from its effects, with the exception of three or four cases of imputed abortion.

To many the muffled ears of cinchonism are not even disagreeable. Cinchonism is capable of superseding and suppressing that excited condition of the circulation and animal heat known as fever, except when depending on anæmia, as symptomatic of inflammation, or its effects.

Quinine is purely a febrifuge: instead of being a tonic or stomachic, it generally induces anorexia, and a relaxed and macerated state of the skin, some tremulousness, and in many cases slight aphonia.

As a febrifuge the full efficacy of quinine is seldom obtained, unless pushed to cinchonism. Cinchonism is therefore the test and criterion in practice of the full and sufficient use of quinine.

It is probable that the protective influence of quinine against fever seldom lasts longer than the manifestation of cinchonism. The ordinary headache of fever does not contra-indicate the use of quinine.

The power of quinine seems to be to cut off the connexion between local irritation and constitutional excitement, to disturb and break the series of morbid elaborations set up in some specific fevers, which terminate, for the most part, in contamination of the blood and loss of vital cohesion of the capillaries. In intermittent fever it is antidotal.

Quinine is of little efficacy in intermittent fever, when exhibited during the paroxysm.

Quinine is of no efficacy in the last stage of continued or remittent fever, where the vascular and thermal excitement have been succeeded by organic lesion or contamination of the blood. It should be given, as is well known, in the intermission of intermittent fever, and in the formative, or in the first stage of continued remittent or yellow fever.

The use of quinine against relapses of intermittent fever, whether the disease has been primary or secondary, is one of the most valuable applications.

In using quinine against the paroxysms of intermittent fever, hourly doses of three grains, till twelve doses be given, is the best mode of saturating the system with the remedy. If, however, the disease be a quotidian, with short intermission, six-grain doses hourly, till six doses be given, will be judicious practice.

In the other fevers where quinine is eligible, and the remedy is prescribed during the existence of febrile excitement, the dose, to be efficacious, must be large, and the impression on the disease sudden and overwhelming.

An auxiliary, too, is also required in such cases: twenty-four grains of quinine and twenty grains of calomel, in one dose, is the most powerful resolvent of fever. One or two such doses, with an interval of six hours, and followed by a castor oil purgative, are generally sufficient; but I have prescribed six such doses with efficacy, and I recollect no instance of ptyalism occurring when this treatment was required and adopted, and sometimes there is but mild cinchonism. An intolerance of quinine, or early and intense cinchonism, in such cases, is one of the worst prognostics.

In the treatment of simple intermittent fever, or its relapses, calomel is rarely, if ever, prescribed by the writer. Sulphate and carbonate of magnesia mixture, or sulphate of magnesia and tartrate of antimony mixture, as a purgative during the hot stage, (if needed,) or fifteen drops of solution of acetate of morphine, with a drachm of sweet spirits of nitre, if there is much suffering from muscular pains, headache, or emesis and retching, will speedily relieve the paroxysm; and followed by quinine, in combination with purgative doses of rhubarb, will fulfil all the indications for the intermission.

But when an European or North American, probably not long

from a cold climate, and during the prevalence of malignant disease, is attacked by fever, and shows to the quick and practised eye alarming indications, no fear of the injurious after-effects of the mercurial will have weight to withhold the resolvent dose of calomel and quinine. In cases threatening danger to life only need it be used, and I know of no instance wherein the slightest untoward result has been experienced from its use.

The combination of quinine with tartar-emetic in pneumonic and bronchitic complications of intermittent is eminently successful. The forces which disturb the remedial power of quinine in fever are chiefly inflammatory and congestive complications, or a loaded condition of the alimentary canal. These must be obviated by appropriate treatment, and the disease rendered as simple or idiopathic as possible, concurrent with the use of quinine. Thus arteriotomy may frequently be required in continued, remittent, or yellow fever; and in intermittent, with tenderness over spleen, a blister may be required, as an auxiliary to cinchonism.

There is a form of continued, or irregular remittent fever, occurring chiefly in children or adolescents, in which generally no local cause can be discovered, but which is often imputed to worms; but give what anthelmintics you will, no worms may be passed; hence here they are properly called "stubborn worms." This fever may continue for a week or a fortnight without any contamination of the blood or loss of vital cohesion, and probably depends on intestinal irritation. Danger in these cases chiefly arises from the supervention of some lesion, induced by the long-continued and excessive heat and violent action of the heart, or sympathetic irritation of the brain. In these cases I use quinine, with immediate and signal efficacy, in the following manner:—

The patient is put into a bath, and the cold affusion is applied till the pulse becomes small, and nearly extinct, at the wrist, and the skin cold. He then, while in the bath, gets his dose of quinine, (two or three grains,) and is returned to bed without being dried. The bath and the dose of quinine are continued hourly as long as the skin persists warm, when the hourly dose of quinine is due. After five or six baths the skin generally becomes permanently cool, and then the quinine is pushed on to cinchonism, alone, and without the bath. This mode of making an intermission in a continued fever I have never found attended with unpleasant or dangerous consequences, and it will generally subdue the fever after every other method has been tried in vain.

In fever of doubtful origin, and where latent inflammation is suspected, I have frequently used a small cantharides blister as a test: in fact, I never like to pass the blistered surface of a patient without inspecting it, its revelations are often so interesting and important. If, instead of the usual vesication of thin serum and cuticle, the vesication is a bladder of fibrinous coagulum, or suety in consistence, inflammatory action is going on, probably in the neighbourhood of the part, and tartar-emetic, or such-like combinations, are indicated.

Relapses in intermittents have their determinate periods, the day from the last attack being generally some multiple of *seven*.

The usual day of relapse among the acclimatized of this colony is the fourteenth or twenty-eighth.

After one or two relapses, the law of each individual case can be ascertained by each patient.

The prophylactic which I have adopted with great success, and in my own person first, many years ago, is as follows:—

Two days before the anticipated relapse, three grains of quinine, to be taken thrice daily for four days; and after a similar relapse interval, the quinine to be again taken in the same manner; and so on, repeated three or four times successively. The disease is eradicated completely by thus baffling the relapse.

Lancet, Sept. 23, 1848, *p.* 344.

3—ON THE CEREBRAL COMPLICATION IN CONTINUED FEVER.

By G. Todd, Esq., Evenwood.

[Mr. Todd argues that the cerebral complication in continued fever, is not in general of an inflammatory nature, but is the result of influences derived from the action of the fever-poison upon the blood itself, upon the organs which purify the blood, and upon that part of the sympathetic system which presides over the cerebral capillary circulation. Mr. Todd observes:]

Of all the symptoms which occur in cases of continued fever, and more particularly where the state of the principal organs has been neglected, there are none more formidable, or more to be apprehended, than the cerebral. The brain may become affected in the early stage of fever, and more particularly so in those cases where the exciting cause has been intense, the predisposition strong, and the subsequent reaction excessive. It is more usual, however, to meet with this complication during the middle and advanced stages of the disease. Patients who are about to have this cerebral complication will exhibit two opposite states, which will not fail to warn the observant practitioner of the danger to which the brain is about to be exposed. In the first of these states the patient will be irritable, excitable, without sleep, frequently incoherent, and muttering to himself; there may be no remarkable heat of the scalp, suffusion of the eye, or headache. In the opposite state the patient is drowsy and sleeps much, so that when he is roused he soon falls asleep again; he looks heavy; the eyes are slightly suffused, and some congestion may be observed about the face and head. Whenever these promonitory indications are observed, the evil ought to be anticipated, by having six or eight leeches applied behind the ears, and the application of them repeated at short intervals; the nape of the neck ought to be blistered; the hair ought to be shaved off the head; and should these remedies

fail in giving relief, we have then a powerful aid in the application of a blister to the scalp, and by these means we shall frequently oppose a barrier to the further progress of the disease.

In cases of continued fever, the offspring of a concentrated dose of the fever poison, the patient is often thrown into a state of collapse, frequently so alarming as to excite apprehensions that the patient might die in this state, and for which the immediate use of stimulants is requisite; and, as is generally the case, the subsequent reaction becomes excessive. There can, then, be no doubt that venesection, in conjunction with other means, will have the effect of greatly lessening the cerebral excitement; but in a great number of such cases the repeated and prolonged abstraction of blood will not mitigate, but increase, the cerebral symptoms; the pulse will still beat forcibly; the action of the heart will not be lessened; the face will continue flushed, the eyes suffused, and the acute pain in the head unmitigated. There will still be intolerance of light and noise; and if the patient has been delirious, such antiphlogistic treatment will only tend to increase it.

The same observations are equally applicable to the cerebral affection, which takes place at the more advanced stage of fever. If we watch the premonitory symptoms which ought to warn us of the approach of this complication, we may then have recourse to bleeding, and other antiphlogistic measures, with the greatest benefit to the patient; for although we must admit that in the production of the cerebral symptoms in continued fever, there is something more than mere congestion or inflammation of the brain, yet we must not infer from this that there is no necessity for taking any steps to obviate or remove congestion of the head in this disease. We must, however, be careful how we proceed with respect to a repetition of the bleeding, and should not go so far as if treating a case of a genuine inflammatory character, always bearing in mind that increased vascular action is no proof in itself of inflammation, but rather may be looked upon as a symptom produced by the fever poison.

It is, then, to the state of the brain at these two periods of continued fever, when the antiphlogistic and derivative plan of treatment has been found inadequate to overcome the urgent cerebral symptoms, that I wish more particularly to draw attention, and to recommend a plan of treatment which, in my practice at least, has been attended by the most gratifying results.

In 1842, while an epidemic of continued fever was prevailing extensively in my locality, I was struck with the very inadequate success which I met with from the antiphlogistic plan of treatment in cases complicated with severe cerebral affection, and more particularly in cases where, from symptoms indicating great cerebral disturbance, I was led to suppose that no other plan of treatment could be attended with beneficial results. It was while attending to a very severe case of this description, and in which the antiphlogistic plan of treatment had been pushed to the utmost extent without relief to the pain in the head, or other symptoms of great

excitement, that I ventured upon an opposite plan of treatment, by giving the patient a combination of tartar-emetic, tincture of opium, and camphor mixture; and the benefit from this treatment was indeed most surprising, for the urgent cerebral symptoms vanished as by magic, and the patient was soon convalescent. The same plan of treatment was equally beneficial in many other cases similarly situated. Soon after this I had the pleasure of reading Dr. Graves's book on Clinical Medicine, where I found those views which I had so very imperfectly understood in connexion with this subject fully detailed.

[Mr. Todd introduces some cases from Dr. Graves's work, which are as follow:]

Case 1.—A man, aged twenty-five, was admitted into the Dublin Infirmary on the 20th December, 1834, having been then about eight or nine days ill. He was in a high state of excitement; mental wandering; incessant talking and raving. He had illusions of the senses of sight and hearing; his eye was red and watchful, and he never slept. To this state was added great derangement of the whole nervous system; his respiration was interrupted and suspicious; the pulse was 120, soft, and weak; the pupils were somewhat dilated; tongue parched and brown. Under these circumstances the patient was ordered a draught, composed of two drachms of mint water, two of common water, and a quarter of a grain of tartar-emetic, to be given every hour until it produced some decided effect on the constitution. In the course of four hours he took four doses of the tartar-emetic; almost every dose vomited him, but not immediately. The medicine acted on his bowels, and brought away a considerable quantity of bilious, yellow fluid, after which he enjoyed some sleep; his respiration became more uniform; his raving greatly diminished; the subsultus and tremors were nearly gone, and he appeared quite tranquil. He was now ordered a wineglassful of porter, with two drops of black drop, to be repeated every second hour. The next day this man was in a most favourable state. His skin is covered with a profuse warm perspiration; he has slept well; belly soft and natural; respiration slow and regular; pulse diminished in frequency; he is calm, rational, and composed; and from this time he recovered rapidly and completely.

Case 2.—John D——, admitted into the Meath Hospital, May 21st, 1835; three or four days ill; a strong young man; the symptoms were attended with considerable reaction at the beginning, his face being flushed, eyes wild, and head aching; he raved much during the night from the fourth day, and had then a full bounding pulse at 105. He was bled from the arm, and leeches applied to the epigastrium. On the sixth day of fever he was without sleep, had great thirst, skin moist, pulse 120, pain in head severe. His head was shaved, and leeches applied behind the ears, and they were repeated three times. On the ninth day the eyes were suffused, face flushed, no sleep, cold lotions to the head. On the tenth day delirium violent during the night; straight-waistcoat neces-

sary; eyes suffused; skin very hot; pulse 120; considerable subsultus. Six leeches to be applied behind the ear three times successively. Tartar-emetic, four grains; water, one pint; half an ounce every hour. On the eleventh day he slept very little; delirium less violent; heat of skin less. Ordered camphor mixture, eight ounces; tartar-emetic, four grains; tincture of opium, one drachm; half an ounce to be taken every second hour. On the twelfth day he slept five hours; seems better, but still he passes his stools under him; pulse 120; eyes suffused; skin hot; tongue cleaning; belly soft; bowels loose. The same prescription, except that the tincture of opium was increased to one drachm and a half in the eight-ounce mixture. On the thirteenth day the medicine was continued for several hours, when he fell asleep, and slept so much and so tranquilly, that it was not thought necessary to repeat it. Pulse 110; subsultus not near so violent; does not rave; knows every one, and answers rationally. About the twenty-first day he was free from fever; but he got no medicine after the night of the twelfth.

Case 3.—I. K——, aged thirty years. This patient's fever commenced with rigor, headache, and pains in the loins, the headache being perfectly severe. He raved incessantly; slept but little; had frequent retching; his bowels were confined: for these symptoms he was purged to excess, and bled largely and frequently, but without any permanent alleviation. On the twenty-first day of fever, the patient exhibited great anxiety; his eyes were bloodshot and wild; tongue brown and furred with clefts; he raved violently, and attempted to get out of bed several times; great excitement and subsultus; his skin was very hot and dry; bowels confined. He was ordered forty drops of tincture of opium, and an enema was was exhibited. He slept not during the night, and the excitement continued. To take an ounce of the following mixture every second hour:—Tartar-emetic, four grains; tincture of opium, one drachm; camphor mixture, eight ounces. After he had taken the third dose, he had a large watery evacuation, and after the fourth dose he fell asleep, in which he continued for nearly twelve hours. He awoke much refreshed, and covered with a profuse perspiration. He was able now to recognize his friends; the subsultus and general excitement was greatly, but not entirely allayed; his pulse, which had been 120, small and wiry, had fallen to 98; he continued his medicine during the next night with the greatest benefit. From this period his recovery was rapid and unexpected, and at the end of three weeks he was able to attend to business.

I wish it to be distinctly understood, however, that I am not advocating this plan of treatment as one fitted to the early stage of the disease, before bloodletting and other antiphlogistic measures have been moderately employed; it is only where such treatment has failed to arrest the cerebral affection, that the treatment by tartar-emetic and opium becomes so valuable, and more particularly when, after such antiphlogistic treatment, the patient exhibits symptoms of general vascular excitement, characterized by acute

pain in the head, heat of skin, suffusion of the eyes, intolerance of light and sound, delirium, &c.

[The question of the employment of bloodletting in the cerebral complication of fever, Mr. Todd observes, is one of the greatest difficulty. The proper time for bleeding *is at the very onset* of the fever, and before the cerebral affection is fully developed; and when used in this way, it is often of the greatest utility, and prepares the way for the treatment by tartar-emetic and opium. But the more the sensorial functions are disordered and oppressed, the less likely will bloodletting be to prove effectual. In the following extract, Mr. Todd's views are more clearly developed. He says,]

The cerebral affection in continued fever may be conveniently divided into three stages, each requiring a modification in the administration of the remedies which I am now advocating. In the first stage, the patient will exhibit great vascular excitement, acute pain in the head, with a hot and dry skin; delirium of a violent and roving character; the face will be flushed, the eyes wild; a full, bounding pulse. These symptoms will vary according to the severity of the previous stage of depression or collapse. Under such circumstances, it will be necessary to have recourse to a judicious and moderate abstraction of blood, either generally or locally, and repeated, if the symptoms seem to indicate it. With respect to the quantity of blood which it may be necessary to abstract in this stage of the disease, much must be left to the judgment and experience of the medical attendant, as no general rules can be laid down which will be applicable to every case. The second stage will be characterized by intense headache, suffusion of the eyes, great restlessness, no sleep, violent delirium, quick, feeble pulse, subsultus, and much disturbance of the nervous system generally. It is at this period that the tartar emetic must be given in large doses, not less than four grains in the eight-ounce mixture, either alone or combined with a small quantity of laudanum, not exceeding thirty drops in the eight-ounce mixture. In the third and more advanced stage of the fever, the cerebral symptoms will be characterized by delirium, suffusion of the eyes, headache, constant muttering, subsultus, great restlessness, and total loss of sleep; hot skin, quick and feeble pulse. For these symptoms, the tartar-emetic must be combined with a larger quantity of laudanum, and the addition of camphor mixture. It is in this advanced stage of the disease that we more particularly experience the beneficial results of this plan of treatment.

When perusing one of my favourite authors, (the illustrious Sydenham,) I have often been struck with the success which it appears he derived from the administration of opium in various diseases attended with cerebral distress, in malignant fevers, in small-pox, &c. I resolved, therefore, to make a trial of it, in combination with the solution of tartar-emetic, in some cases of continued fever, with severe cerebral complication, which occurred in my practice in 1842, and the results have certainly surpassed my

best hopes. When bleeding and other antiphlogistic remedies were found inadequate to subdue the headache, delirium, and other cerebral symptoms, the effects of opium were in many cases quite marvellous, all the urgent symptoms vanishing in a very short time; and I am perfectly convinced that the mortality decreased, and the cases of success became more numerous, in proportion as I became more bold in the administration of opium.

To conclude, I must observe, that I by no means wish to recommend the plan of treatment which I am now advocating as a specific in fever. Its beneficial effects are confined to the cerebral complication, and this complication will, from various causes, present endless varieties. Consequently no general rule can be laid down that will apply to all cases. What may be safe and easy to accomplish on one occasion may be hazardous and difficult on another, and quite impracticable in a third, according to time, degree, and various other circumstances. My present objects are to endeavour to prove that in the production of the cerebral symptoms in continued fever there exists some cause not to be recognized by the production of cerebral lesions, nor the existence of congestion or inflammation, and to confirm the opinions and views entertained by Dr. Graves as to the efficacy of this plan of treatment by tartar-emetic and opium.

Lancet, June 10, 1848, *p.* 629.

4.—ON THE SIMPLE CONTINUED FEVER OF CHILDREN.

By Dr. C. West, Senior Physician to the Royal Infirmary for Children.

[The simple continued fever of childhood was for a long time overlooked, and was then described as remittent fever, worm fever, or hectic fever, and was supposed to be dependent upon gastric or intestinal irritation. Dr. West considers that the affection so described is really identical with the continued fever of the adult. He says :]

If we look closely at the characters of this disease, and compare them, as has been done by MM. Rilliet and Barthez, with those presented by the simple continued fever of the adult, we shall, I think, see so close a correspondence between the two affections as to remove all doubt with reference as to their identity. Both diseases occur independently of any unvarying cause, often independently of any cause which we are able to detect; and both, though generally affecting isolated individuals, yet have also their seasons of epidemic prevalence. Though varying in severity, so that in some cases confinement to bed for a few days is scarcely necessary, while in other cases the patient scarcely escapes with his life, yet medicine has not been able to cut short the course even of their mildest forms. And, lastly, though the local affections associated with both vary much in different cases, yet in every instance we meet with that assemblage of symptoms which make up our

idea of fever. Or if, from the examination of the symptoms during life, we pass to the inquiry into the traces left by the disease on the bodies of those to whom it proves fatal, we shall find still further evidence of the close relation that subsists between the fever of the child and that of the adult. Enlargement, tumefaction, and ulceration of Peyer's glands, constitute one of the most frequent morbid appearances in both diseases, and in both, the changes that these glands are found to have undergone are more advanced and more extensive in proportion to their nearness to the ilio-cœcal valve. In both too, the mesenteric glands are enlarged, swollen, of a more or less deep red colour, and manifestly increased in vascularity; while the softened state of the spleen, the gorged condition of the lungs, and the congestion of the membranes of the brain, are appearances common to both diseases. There is, however, no more relation between the severity of the intestinal lesion and the intensity of the symptoms in the fever of the child than in that of the adult; and there is no ground for regarding the disease as the mere effect of the constitution sympathising with a certain local mischief in the former case, which may not be equally alleged with reference to the latter. The symptoms in both "are the expression of the influence of the disease on the whole economy of the disorder which it occasions in the principal functions of the body, and are an essential part of the disease itself, rather than the secondary effects of certain lesions of the bowels.

[The treatment is during the first week of the illness, for the most part, expectant.]

The impaired appetite often renders any other directions about the diet unnecessary, than a caution to the parents or nurse not to coax or tempt the child to take food which it is, and will probably for some days be entirely unable to digest. The heat of skin and the craving thirst are the two most urgent symptoms in the early stages of the affection. The first of these is generally relieved by the tepid bath at 90° or 92° every morning, and by sponging the surface of the body several times a day with luke-warm water. The desire for cold drinks is often very urgent, and no beverage is half so grateful as cold water to the child. Of this it would, if permitted, take abundant draughts, but it should be explained to the attendants that the thirst is not more effectually relieved by them than by small quantities of fluid, while pain in the abdomen is very likely to be caused by the over-distension of the stomach. The cup given to the child should therefore only contain a dessert or tablespoonful of water in it, for it irritates the little patient to remove the vessel from its lips unemptied. In the milder forms of the disease, and during the first week, medicine is little needed; but a simple saline may be given, such as the citrate of potass in a mixture to which small doses of vinum ipecacuanhæ may be added, if, as sometimes happens, the cough be troublesome. If the bowels act with due frequency, and the appearance of the evacuations be not extremely unhealthy, it is well to abstain from the employment of any remedy which might act upon them, for fear of occasioning diarrhœa, which

is so apt to supervene in the course of this affection. For the same reason, if an aperient be indicated, drastic purgatives are not to be given, but a moderate dose of castor oil should be administered. Now and then, however, cases are met with in which the bowels remain confined during a great part of the affection, and in which such purgatives as senna are not only borne, but absolutely necessary. They, however, are purely exceptional cases; and it will generally suffice to give a small dose of the mercury and chalk night and morning, and during the day time a small quantity of the tartrate of soda or the sulphate of magnesia, dissolved in some simple saline mixture, every six or eight hours.

The unhealthy state of the evacuations that exists in a large number of cases is generally associated with a disposition to diarrhœa, which becomes a more prominent symptom in the second than it was in the first week of the disorder. Equal parts of the hydrargyrum cum creta and Dover's powder are the best means of relieving both these morbid conditions; the remedy being given either once or twice a day, or more frequently, according to the urgency of the symptoms. The amount of abdominal pain and tenderness must be ascertained every day; and a few leeches must be applied to either iliac region, if the tenderness seem considerable, or if the child appear to suffer much from pain in the abdomen, or if the diarrhœa be severe. If depletion be needed, the application of but a small number of leeches will generally meet the requirements of the case, while copious bleeding is neither useful nor well borne. Even in children of ten years old, I never apply above four or six leeches, and it is very seldom that any occasion arises for repetition of the bleeding. The application of poultices to the abdomen, either of linseed meal or scalded bran, and their frequent repetition, is a very valuable means of relieving the griping pain which often distresses children, and in most cases it is desirable to make trial of them before having recourse to depletion.

There is but one other class of symptoms likely to occur during the first week of the fever, to the management of which I have not yet referred; namely, those signs of cerebral disturbance which are sometimes so serious as to call for treatment. The early occurrence of delirium, though it generally implies that the disease will assume a rather serious character, yet does not of itself indicate the necessity for taking blood from the head; but if the child be quiet and generally rational during the day-time, though dull yet not in a state of stupor; while the delirium at night is of a tranquil kind, it will generally suffice to apply cold to the head, and to keep the apartment cool, and absolutely quiet. On the other hand, if there be great restlessness and noisy delirium early in the disease, with heat of head or flushing of the face, local depletion is called for; nor is it less useful in those cases which set in with symptoms that bear a close resemblance to those of hydrocephalus, in which vomiting occurs frequently, and the sense of nausea is abiding, while the child either is constantly making a low moan as if in pain, or is extremely restless, and makes loud complaints of head-ache.

In mild cases of the disease, that expectant treatment usually appropriate during its early stages may be continued throughout its course; great caution being exercised as the child begins to improve, to prevent its committing any error in diet. When severe, however, the second week often brings with it a train of symptoms that require many modifications in the plan of treatment. The vital powers need to be supported, and the nervous system requres to be tranquillised; and this is to be attempted by means similar to those which we should employ in the management of fever in the adult. The mere diluents which were given during the previous course of the fever must now be exchanged for beef or veal tea or chicken broth, unless the existence of severe diarrhœa contraindicate their administration. In that case, which however does not very often occur, we must substitute arrow root, milk, and isinglass, for animal broths. In a large proportion of cases, nutritious food is all that will be required, but wine is sometimes as essential as in the fevers of the adult; and the indications for giving it are much the same in patients of all ages. Even though wine be not necessary, I generally give some form of stimulant during the second and third weeks of the affection. The prescription which I usually follow is one much praised under such circumstances by Dr. Stieglitz, of St. Petersburgh. For a child of five years old, it is four minims of dilute hydrochloric acid, eight of the compound spirit of sulphuric ether, and three drachms of camphor mixture every six hours. It seldom disorders the bowels if they be not much disturbed at the time of commencing its administration; while a small dose of Dover's powder, as a grain or a grain and a half at bed-time, is doubly useful, both in checking tendency to diarrhœa and in procuring sleep for the child, who, without it, would probably be watchful and delirious all night long. So long as any severe abdominal symptoms are present, I abstain from the use of the acid mixture; but give the mercury and chalk, with Dover's powder, every four or six hours, to which I occasionally add an opiate enema at bed time; and support the strength by food and wine as may be necessary.

The only complication that is apt to be troublesome is the bronchitis. Usually, however, the cough to which this gives rise is rather an annoying than a dangerous symptom; and it is in general more harrassing at the commencement of the affection, and again when convalescence is beginning, than during that time when the graver symptoms are present. A little ipecacuanha wine, nitrous ether, and paregoric, will usually relieve it, to which it may occasionally be expedient to add the application of a mustard poultice to the chest.

[In the treatment of the weakness which is left by the disease, Dr. West thinks that tonic medicines are unadvisable; change of air, and especially removal to the sea-side, are not only safer, but are almost always successful.]

Medical Gazette, August 11, 1848, *p.* 221.

5.—ON THE TREATMENT OF MALIGNANT SCARLATINA.

By Dr. J. M. Coley, Physician to the Pimlico Dispensary.

[Since bleeding was abandoned in the treatment of this disease, stimulants have formed the usual remedies. They were employed by Dr. Coley, in connexion with proper local applications, at the commencement of the epidemic in Dec. 1847; but finding that he lost the first four patients in succession, and observing that the state of the fauces was identical with that which was found in the late epidemical diphtherite, he was induced to try the effects of small repeated doses of calomel, at the very commencement of the disease. Dr. C. says,]

The trials which I have given to this plan of treatment have satisfied my expectations, as far as the disease in the throat is concerned, the operation of this remedy having produced the same salutary effect upon the capillary circulation in the inflamed parts as I found it to effect in cases of diphtherite. It must, however, be observed, that the medicine must be exhibited very early in the disease, before ulceration commences, for it exercises no beneficial effect in assisting the ulcerative process when that has become established: this I discovered in the treatment of diphtherite and other inflammatory affections of the throat, before any considerable ulceration has commenced. With respect to its operation in preventing the supervention of the specific inflammation of the abdominal viscera, I have not had sufficient experience at present of forming a correct opinion, in consequence of our ignorance of the exact period at which it may commence. As far as I have had opportunities of pursuing this inquiry, I am inclined to believe that the congestions and inflammatory proceedings in the internal organs are nearly, if not exactly contemporaneous with those which we observe on the fauces. If this should be found to be the case, I should be inclined to expect the same salutary effect from calomel as I have observed in subacute and acute inflammations in other internal organs, as well as those engaged in scarlatina, when administered *before the morbid product has been elaborated.* After that event has occurred, as in granular degeneration of the kidney or in tubercle, I am aware that mercury has a decidedly injurious effect on the constitution, without producing any improvement on the specific deposition, which it seems on the contrary to accelerate.

[It should be given in doses of one or two grains every four hours; and thus given does not affect the mouth. Acetate of ammonia may be given in conjunction with it; or in the later stages, if there are hæmorrhages from the mucous membrane, or petechial spots, quina with sulphuric acid may be exhibited. The best local application is a lotion with nitrate of silver, a scruple to the ounce, applied twice or thrice a day to all the parts which are ulcerated, or covered with diphtherite. If abscesses form in the glands of the neck, they are to be opened freely as soon as there is fluctuation or external redness.]

Medical Gazette, April 21, 1848, *p.* 666.

6.—*On some Points in the Treatment of Scarlatina.*—By Dr. C. West.—The state of the throat must be carefully watched in every case of scarlet fever: and whenever there is much swelling of the tonsils, if the child be too young to gargle, a slightly acidulated lotion should be injected into the back of the throat, by means of a syringe, every few hours, in order to free it from the mucus which is so apt to collect there, and to be the source of much discomfort. If there be much deposit of lymph upon the tonsils, it is generally desirable to apply the strong hydrochloric acid, mixed with honey, in the proportion of about one part of the former to six of the latter, by means of a dossil of lint, or a camel's-hair pencil, two or three times in the twenty-four hours; but the strength of the application must be increased if the tonsils be ulcerated, or if any disposition to sloughing should appear. The coryza, which is so distressing and so ill-omened a symptom in cases of severe scarlatina, is best treated by throwing a small quantity of a solution of gr. j. or gr. ij. of nitrate of silver in ℥j. of distilled water, up the nostrils every four or every six hours. The glandular swellings are very difficult to relieve. When considerable, they do not seem to be benefited by leeches; the employment of which is also, in many cases, contraindicated by the feeble state of the patient's powers; while they show very little disposition to suppurate, and consequently are not relieved by lancing: so that the constant application of a warm poultice is often all that can be done to afford ease to the patient. Children, in whom the local affection is severe, or in whom the disease assumes a malignant character, require all those stimulants, and that nutritious diet, which we are accustomed to give to patients in certain stages of typhus fever; though, unfortunately, the best devised means will, in many such cases, prove ineffectual.

[A still more easy and efficacious application in some of these cases is a solution of crystallized nitrate of silver, (ʒss. or ℈ij. to the ℥i.) applied to the diseased parts by means of a sponge tied to the end of a bit of whalebone, as described by Dr. Green, in Retrospect, Vol. XVI., p. 118.]

Medical Gazette, Aug. 25, 1848, p. 316.

7.—ON RHEUMATIC FEVER.

By Dr. R. B. Todd, F.R.S., Physician to King's College Hospital, &c.

The synovial membranes in this condition are highly vascular; so much so, that I have sometimes seen them, in cases where I have had an opportunity of examining them, as red as the conjunctiva when in a state of violent inflammation. Another characteristic of the disease is, its tendency to shift its position. To-day it will be in the *right* knee, which will be swollen, hot, and tender; to-morrow all this will have disappeared, and you will have the same symptoms in the *left*. This erratic tendency—this disposition to wander from

joint to joint—is a symptom which you should carefully keep in mind; where it exists in a very marked degree, it must be considered a bad feature, indicative of a low form of the disease and a low state of the vital powers; and it is to cases in which this symptom is prominent that depressing treatment is found to be particularly prejudicial,—often aggravating the disease generally, and this feature of it in particular. The erratic tendency is present not only in rheumatic fever, but likewise in the analogous disease of gout; and it was this that led the old writers to regard the internal inflammations which are apt to come on in the course of these diseases as "metastatic"—an idea which, however it may have some support in gout, is inadmissible in rheumatic fever. It by no means follows that an inflammation of an internal part should be a metastasis of an external inflammation, even should the latter diminish or cease on the appearance of the former; but a strong objection to the doctrine of metastasis is founded on the fact that we often find that they manifest themselves simultaneously, and sometimes that the internal inflammation comes first; and it rarely happens that the external inflammation becomes diminished or exacerbated by the increase or diminution of the internal, and *vice versâ*.

[Dr. Todd proceeds to speak of some other of the symptoms,—such as the profuse acid perspiration; the urine, scanty, and loaded with lithates, purpurates, even oxalates, or still more rarely blood; the furred state of the tongue, its persistence indicating that the rheumatic condition is not subdued, even if the pain is relieved; and the pericardial or cardiac affection, existing even concurrently with the external inflammation. He then proceeds to say—]

The connexion between rheumatic fever and deranged uterine secretions is very remarkable. Some of the most severe cases I have ever seen have followed dysmenorrhœa. It would seem as if in these cases the uterus were but imperfectly evacuated, and its contents getting into the circulation, produced a morbid state of the blood, which gives rise to the symptoms which we see, and requires for its cure the elimination of the unhealthy material by the various emunctories.

Not unfrequently after the puerperal state the patient exhibits all the symptoms of ordinary rheumatic fever: the same profuse sweats, the swollen joints, the fever, and the lithic urine; but in some cases the disease runs a more formidable course, the joints, instead of getting better after a time, continue to get worse, till at last the cartilages ulcerate, pus is secreted in large quantities, and fills the synovial membranes to distension: the articular extremities of the bones are laid bare, and the rough osseous surfaces grate against each other when the limb is moved. I have seen all the large joints in this condition. At the same time deposits of pus form in the muscles, and in other parts. Some of the French writers describe this disease under the name of "*puerperal acute rheumatism*." It is, in fact, a form of puerperal fever, due to inflammation of

some of the uterine veins in which pus is formed, which, infecting the blood, excites articular and other inflammations in its passage through the circulation. Such cases throw light on the pathology of rheumatic fever, and show how a morbid matter, generated at one part of the circulation and carried through its round, may occasion serious disturbance in the local nutrition of the various parts through which it may be undergoing elimination, and give rise to a train of symptoms closely resembling and not to be distinguished (save by the history) from those of rheumatic fever.

[The treatment of rheumatic fever is a subject upon which much difference of opinion exists among practitioners. Dr. Todd insists very strongly upon the importance of curing the disease with as little impairment of the power of the constitution as possible; and remarks that while we should aim at securing for the patient a short convalescence, we must guard equally against the danger of relapse, which the so-called speedy cures by the heroic treatment are too apt to leave behind. Before determining upon the treatment of rheumatic fever, it is necessary to have some idea as to its nature. Dr. Todd tells us—]

Rheumatic fever is a state of high febrile excitement, induced by the accumulation of a peculiar morbid product, or *materies morbi*, in the circulation; and the symptoms which accompany it are merely caused by certain local derangements and disturbances produced at those points whence its elimination from the system is taking place. This materies morbi is the result of a vitiated state either of primary or secondary assimilation, or of both, and the parts where it accumulates are just those parts which, while they are very vascular, and therefore contain a large quantity of the diseased material, present the least obstruction to its escape from the circulation. These are the delicate synovial membranes of the joints, and the almost identical structures of the serous membranes —the pericardium, endocardium, pleura, the air-cells of the lung itself, and even the peritoneum: parts where the bloodvessels are covered by but a film of membrane. These membranes, being largely supplied with rheumatic blood, pour forth into their cavities an enormous amount of their ordinary secretion, contaminated with the diseased material. Thus, the synovial membranes become distended with a morbid synovia, which, instead of being alkaline, as it is in health, has a reaction decidedly acid: and thus, likewise, the profuse sweats are due to the irritation established in the skin by the morbid product, and the abundant fluid thus got rid of has, like the synovia, a marked acid reaction: the functions of the kidneys are, doubtless, similarly affected, and you get an abundance of lithic acid in the urine. But this morbid matter may escape likewise through the serous membranes, as it does at the synovial, or at the lungs, or at the heart; and hence, at any of these places it may excite inflammation, and at all of them is it disposed to do so: and it is evident that the more its elimination is encouraged and favoured at the skin, at the kidneys, at the joints,

and at the mucous membrane of the alimentary canal, the less likely are the other important parts to suffer—the less chance have you of pleurisy, pneumonia, pericarditis, &c.

Treatment.—I think the most instructive way in which we can discuss the treatment of this disease, will be for me to enumerate the various methods which have been proposed for this purpose, and to point out the reason for rejecting some and adopting others. As many as seven different plans may be specified, of which I shall place last that which I am in the habit of following here, and which I call *the treatment by elimination.*

The first plan is that by venesection. It was thought by many, and still, unfortunately, is thought by some, that when called to a case of rheumatic fever, they have only to open a vein, and, if they succeed in taking away a sufficient quantity of blood, which, in many instances, they think should be little short of two or three pints, that they may by this large and rapid abstraction of blood cut short the disease, and convert a malady which ordinarily lasts some weeks, into one of a few days' duration. Frequently not content with one large bleeding, they will pursue the practice, and bleed a second, a third, or a fourth time, at short intervals, and in large quantities.

[Dr. Todd earnestly dissuades us from the adoption of this practice, which he says has the support neither of reason nor of experience; though some patients may be relieved by it, others will be killed, and others will tediously linger on in an anæmic and debilitated state. The second plan of treatment, that by moderate venesection and diaphoretics,—and the third, that of the administration of calomel and opium until salivation is produced, are also objected to by Dr. Todd, it being considered by him that both are productive of certain evil consequences. Dr. T. then tells us—]

4. Another plan of cure which has been proposed is by colchicum and by guaiacum. These drugs, but especially colchicum, have long been considered to possess a specific influence over rheumatic and gouty affections; and it has been laid down that the rheumatic condition will be subdued in just such proportion as you get your patient under the influence of the colchicum, somewhat in the same way as quinine exercises a specific influence on ague. Now I think it requires only two or three cases to a candid mind to prove the fallacy of this doctrine: I myself have frequently given this remedy the fairest trials, but I could never discover any effect from it sufficient to entitle it to the character of a specific. That it is capable of exerting a remarkable influence on gout I do not deny; but even this must be admitted with considerable limitation, and it is certainly far from exercising any similar or analogous influence in rheumatism, whether acute or chronic. The effect of guaiacum has also been supposed to be specific, and similar to that of colchicum; but I am equally indisposed to give it that character. Both these medicines, when given in large doses, purge, and if given in such doses I have no doubt they may do some good, on the principle

of eliminating the morbid material by the alimentary canal; but unless you give them in such doses as to produce colliquative purging, you do but little towards cutting short the disease; and if you do give them in these large doses, you produce a degree of prostration and debility which is sometimes more dangerous than the disease, and you leave your patient to linger through a tedious convalescence. Colchicum given in small doses produces no good effect in rheumatic fever according to my experience; on the contrary, I fear that in some cases it has a prejudicial influence on the nervous system, making it more irritable and susceptible of impressions, and rendering the patient more obnoxious to the various accidents that are liable to occur in the course of the disease.

5. *Treatment by Opium.*—This plan of treatment has been lately revived by a very able physician, Dr. Corrigan, of Dublin. It has much to recommend it, and, on the whole, you will find it extremely serviceable in practice; but I do not recommend it alone: its great value consists in relieving suffering, and soothing the nervous system, while it promotes diaphoresis. The opium is given in large and frequently-repeated doses, care being taken not to produce too much narcotism; but upon this point in general, there is not much need for fear, as there seems to be in the generality of patients a remarkable tolerance of opium.

[After alluding to Dr. Haygarth's treatment by large doses of bark, (for which quinine is now substituted), which he considers applicable in certain instances, and still more in certain stages of the disease, Dr. Todd proceeds to speak of the *treatment by elimination* which he adopts. He says,—]

It is probable that the *materies morbi* in rheumatic fever is lactic acid. We know that the natural emunctory of this is the skin: many chemists maintain that it will also escape by the kidneys, and if it ever does so, perhaps this is more likely during rheumatic fever than at any other time; and again, since vitiated digestion is apt to produce it in undue quantity, and it, therefore, exists abundantly in the stomach, there is every reason to think a certain proportion of it may be carried off through the alimentary canal. The indications are, therefore, to promote the action of the skin, the kidneys, and the bowels; to use antacid remedies; and to give large quantities of fluid for the free dilution of the materies morbi, and in aid of the drainage by diaphoresis and diuresis.

The best way to promote the action of the skin is by opium, especially if you combine with it nitre and ipecacuanha. For this purpose I use a compound, which resembles the original Dover's powder, which contains nitrate of potass instead of sulphate of potass, as prescribed in the Pharmacopœial compound ipecacuan powder. Our usual prescription is one grain of opium, one grain of ipecacuanha, and five grains of nitre: this must be given every two, three, or four hours, according to the urgency of the symptoms and the need the patient has for opium. This drug quiets the nervous system, and procures sleep, and with the ipecacuan

promotes sweating; while the nitre acts upon the kidneys, and the ipecacuan may exercise some influence on the liver. Next you must give purgatives to such an extent as to keep the bowels in a loose state, but not carrying the purgatives so far as to weaken your patient, or worry him by obliging him to be frequently moved in or from bed. You will find it advantageous to use an alkaline purgative; and there cannot be a better medicine for this purpose than our hospital nostrum—the white mixture containing magnesia and sulphate of magnesia. Sometimes you may give the potassio-tartrate of antimony with advantage, but as it is a depressing remedy, it is not always advisable to use it.

But, while we are thus alkalizing our patient, and giving internally sudorifics and diaphoretics, is it advisable to attend to the state of the joints? The diligent physician will tell you by all means to attack them at once:—but there is such a thing as "nimium diligentiæ" in physic as well as in any other matters. Many will say, the best thing you can do is to leech a painful and swollen joint. I formerly tried it extensively, but for some time past I have not done so, as I generally found it either a useless or an injurious practice. You may apply leeches, and in a short time after you will find the pain and swelling removed, and you may be disposed to say to yourself, "here is a proof of their efficacy:" but wait twenty-four hours, and then you will generally find the pain and swelling as bad as ever, and the joint in just the same condition as before. Now apply leeches, and you will probably fail to give any relief. You have by the first application relieved the pain for a time, but you have produced no permanent good,—you have rendered the disease more erratic, and less amenable to subsequent treatment. Frequently when you leech a joint, the pain and swelling subside, but its fellow becomes swollen: leech it, and the swelling and pain return to the original joint. Nothing is more important to avoid, nor more troublesome if not prevented, than the erratic tendency of the rheumatic state. It will fly from joint to joint, and in pursuing it with leeches you only drive it out of one joint into another. I am satisfied that leeching the joints favours this erratic tendency.

I am not prepared, however, to advise you to neglect the local treatment of the joints. When they are much swollen and painful, you may give great ease to your patient by enveloping them in a large quantity of the soft carded cotton—what is commonly called *cotton-wool*. Over this you must wrap a sheet of oiled silk, so as to cover in the wool completely, taking care to have no part of it exposed. By this air-tight covering, you keep the joints in a complete vapour-bath; and when you come to remove the oiled silk and wool after twelve or twenty-four hours, you find the wool completely saturated with moisture, which generally is strongly acid.

You perceive that all the means employed in this mode of treatment tend to elimination, and to the relief of pain—the opiate

sudorific—the nitre acting on the kidneys—the purgatives on the mucous membrane of the bowels—the wool on the joints.

During this treatment, while you allow your patient the liberal use of simple diluents, you must give a fair amount of nourishment from the first; and I think this may be best supplied by a small quantity of good beef tea, given frequently throughout the day.

Medical Gazette, Oct. 6, 1848, *p.* 568.

[But this treatment cannot always be fully carried out. For instance, as Dr. Todd says,]

It may sometimes happen that you will have to deal with a patient who is unable to take opium. What are you to do under these circumstances? There is no reason why you should change the general plan of treatment—you may still give sudorifics—and if your patient will bear sedatives, you can give hyoscyamus, or hop, or extract of lettuce. But it will, I believe, very seldom happen, that in this severe and painful malady, patients will be unable to bear opium in some shape or other, and the benefits to be derived from the proper use of this drug are so great that you ought to try it in various ways, and in different preparations, before you abandon it altogether. I think that practitioners often fail in obtaining all the good effects of opium from being too timid in the use of it, giving it in too small a dose, and employing it in a vacillating manner: you must give it in a large dose, not less than a grain, frequently repeated, taking the state of the pupils as your guide to encourage or deter you from proceeding with it. You will of course proceed with great caution if you find a very contracted pupil in addition to some degree of narcotism.

[Too much sweating, and too much purging are also to be avoided, as well as too much opium. If the swollen and painful state of the joints does not yield to the cotton-wool application, Dr. Todd advises the prompt use of *small* blisters. He says,—]

I order a small mustard cataplasm to be applied to the affected joint, and to be kept on for half an hour to redden the skin; after removal of this, the skin must be carefully washed and dried, and the blister may then be applied; you must not let the size of this exceed that of a crown-piece. It is better to apply two or three small blisters in rapid succession, and to different parts of the joint, than one large blister. After the blister has risen well, if the swelling of the joint subsides quickly, as it very frequently does, you may let the blister heal as fast as it will; but if the swelling has not subsided, than you had better cut away the cuticle completely, and promote a free discharge from the blistered surface by dressing it with stimulating ointments.

[The heart must be closely watched from the very commencement of the attack. Dr. Todd advises free vesication rather than bleeding, in the pericardial and endocardial complications of rheumatism. He observes,—]

On the first indication or suspicion of heart affection, a large sinapism made with flour of mustard and hot water, is applied over and beyond the region of the heart. This is to be kept on as long as possible: after its removal, and after the skin has been properly cleansed, put on a blister of good size, and you must be guided as to the dimensions of it by your opinion of the extent of the heart which is affected. You need not be afraid of large blisters here, as in the treatment of the joints, because the inflamed organ is much more distant from the surface than the synovial or other articular tissues.

If you pursue the plan which I have thus pointed out, and have drawn a large quantity of blood to the surface by the long continued stimulation of mustard, you will generally succeed in producing very free and large vesication, from which you may obtain a considerable quantity of serum, or rather, I should say, of *liquor sanguinis*, for the fluid of the blister is serum containing more or less fibrine. If you examine the fluid from blisters, especially when the skin had been previously irritated by mustard, you will almost invariably find that it contains more or less of fibrine. In very many instances, if not in all, the coagulated fibrine disposes itself as a membranous layer in immediate juxta-position with the deep surface of the elevated cuticle. On removing the cuticle slowly and cautiously, the serum will not flow away: it is still retained by a very complete, but soft, moist, and almost spongy membrane. This is coagulated fibrine, which has entangled in it a large quantity of the white corpuscles. How these latter escape from the blood-vessels, or whether they are not the result of the organizing tendency of the liquor sanguinis, I cannot pretend to decide. It is clear, however, that blisters will take away the liquor sanguinis with its dissolved elements and perhaps the white corpuscles, which constitute more than four-fifths of the blood. By blistering, you take away that part of the blood which is the great agent in the development of new formations, and these are what you have to guard against in the cardiac inflammations. Moreover, by blistering, you spare that most important part of the blood, the colouring matter, which seems especially valuable for preserving the nervous functions in a state of integrity, and which is no less important for maintaining the healthy action of the heart.

But some of you will say, "What! do you advise us to lay aside that which has so long been regarded as the sheet-anchor in the treatment of inflammations—namely, bleeding, and not only general bleeding, but topical bleeding likewise? If we are neither to cup nor to leech in pericarditis or endocarditis, what security, then, shall we have against the progress of inflammation—against the formation of excrescences on the valves—against ulcerative or suppurative processes being established in the heart, destroying its valves, and infecting the blood?" I am quite aware that the doctrine which I recommend for your adoption is likely to be regarded as extremely heterodox by many, but I believe the number of those who would think so is daily diminishing. In the treatment of the cardiac

affections which accompany rheumatic fever, you have two objects to keep in view: the first is to check the morbid process completely, or to restrain it from producing such changes as may prove destructive to the tissues, and consequently to the mechanism of the heart; and secondly to obviate liquid effusions which may distend the pericardium, compress the heart, and so embarrass its actions, as well as the respiratory movements, as to prove seriously detrimental to life. Now, with regard to the first point, there can be little doubt that bleeding will not stop or prevent the formation of those fibrinous concretions which are so apt to form upon the valves. The formation of these concretions is in a great measure mechanical, and in certain states of the blood they would form around or upon any opposing material just as fibrine will coagulate round the bunch of twigs by which blood is beaten as it flows from a vein. In this rheumatic state, the contractile tendency of fibrine is apparently increased, as is shown by the uniform formation of a tough buffy coat in the blood removed from rheumatic subjects; there is also a considerable increase in the number of white corpuscles; the buffy coat is formed of these two constituents, and the constancy of its formation denotes a tendency in these two elements to separate from the other elements of the blood in the rheumatic state. Doubtless, a disturbed state of the nutrition of the serous membrane or the endocardium, or of certain parts of them, precedes the formation of fibrinous deposits upon them; and this disturbance of nutrition is caused by the accumulation of the rheumatic matter in the vessels of the part. The effect of this is analogous to, if not identical with, that produced by a blister on the vessels of the skin, which I have just now described to you. The liquor sanguinis, and probably the white corpuscles, transude through the parietes of the blood-vessels, and the plastic matter coagulates upon the surface of the endocardial and the pericardial membrane, forming there a substance identical, or nearly so, with the buffy coat of the blood. In the endocardium, which is in contact with the blood as it flows through the heart, this layer of plastic matter forms a nucleus, around which fibrin from the blood which flows over it may coagulate.

Now, if this be a correct account of the manner in which these plastic concretions develope themselves in pericarditis and endocarditis,—and I believe it is that which is most consistent with our present improved knowledge of the blood and of inflammation—it is evident that the object of the practitioner should be to prevent the development of that altered state of nutrition which precedes the fibrinous formations, or to cut it short after its formation. Then comes the question, will bleeding do this? I think our experience of the effects of bleeding upon the joints ought to convince us that it will not: for bleeding certainly will not remove the rheumatic state from them; for, however it may relieve for a short time by diminishing hyperæmia, the flow of blood speedily returns with greater activity than before. I apprehend that the state of the joints and that of the heart are as nearly as possible the same, the difference being that the nature of the synovial secretion offers

a complete physical inpediment to the formation of fibrinous or plastic concretions in the joints.

And I would put another question—will bleeding cut short that state of blood which is so favourable to the formation of the plastic deposits? To this I answer likewise in the negative. Among the best of the recent researches upon the relative quantities of the elements of the blood in various conditions of that fluid, are those of Becquerel and Rodier: what do these observers say as to the influence of bleeding upon the blood? Why, that it greatly diminishes the red particles, that it greatly augments the proportion of water; and that it affects but little or not at all the fibrine: thus, in short, you get a thinner liquor sanguinis holding in solution the same or nearly the same amount of fibrine. In other words, you get a state of liquor sanguinis very favourable to transudation, and therefore very favourable to plastic formations.

If, then, bleeding will not stop the inflammatory state which creates the undue determination of the blood to the pericardial and endocardial surfaces, and if it will not prevent the plastic formations, but rather favour them, surely it is not the remedy for pericarditis and endocarditis. And if the effects of venesection be, as beyond all doubt they are, to diminish all the solids of the blood but the fibrine, and to augment the water, surely the employment of this treatment to a great extent is fraught with the greatest danger of creating liquid effusions into the serous and synovial sacs, which are so exposed to the action of the rheumatic matter.

These are, as concisely as I can put them before you, the theoretical grounds upon which I object to the practice of bleeding, whether local or general, for the cardiac affections of rheumatic fever.

[Besides the local treatment by blistering, mercury, which Dr. Todd believes to have a power of breaking down plastic formations, should be given. For this purpose calomel and opium is the best prescription; and if ptyalism is to be rapidly induced, mercurial ointment may be rubbed into the groins and axilla, and used to dress the blistered surface. There is a complication of rheumatism with delirium, much resembling in some of its features, delirium tremens, and, like it, not at all resulting from inflammation of the brain or its membranes. The following are Dr. Todd's observations upon this affection:—]

When we consider the circumstances in which the brain is placed in these cases, we cannot wonder at its functions being disturbed. In the first place the organ is supplied by a depraved blood—a blood deficient in its most important staminal principle, its colouring matter: a blood infected with an abnormal material, the rheumatic virus, whatever that may be; and if the patient, as is very often the case, have been treated by sanguineous depletions, a watery blood. Such a blood is ill suited for the proper stimulation of the heart, and, consequently, it is not propelled by that organ with its proper force, although the rapidity of the heart's action

may be much increased. And if the heart be inflamed, there can be no doubt that the effect of that inflammation will be to weaken its power. Hence, in cases of this kind, the brain is feebly furnished with a blood, poor in colouring matter, and abounding in water.

I have met with a few cases in which the patient, having evinced previously little or no delirium, has become rapidly comatose, with dilated pupils, and sunk quickly. And it sometimes happens that patients who have been actively delirious will suddenly fall into coma and die; and sometimes they die suddenly while making some effort, beyond their strength, in the midst of their delirious ravings. The state of the kidneys may have some influence in determining the mode of death in those patients who pass quickly into coma, as we know that defective action of that organ so often exercises a baneful influence on the brain.

You will find a valuable collection of cases of delirium and other disturbances of the nervous system, in connection with rheumatic cardiac affections, in Dr. George Burrows' interesting and most valuable work on disorders of the cerebral circulation. The evidence which Dr. Burrows has adduced in that work should teach us, that whenever we meet with a case of delirium, especially rheumatic delirium, we should diligently explore the region of the heart, and watch the condition of that organ most carefully from day to day.

The development of this delirium should be the signal to the practitioner to exercise the greatest vigilance in looking out for cardiac or other internal inflammations, as pneumonia or pleurisy, or even peritonitis, which sometimes, although rarely, occurs in rheumatic fever: if such have not been previously detected. But it should likewise be looked upon as a signal of distress, denoting that the powers of the constitution are unequal to the severe trial through which the patient is passing; and he should immediately come to the patient's aid, and make instant arrangements for having him constantly watched by competent nurses or other attendants, taking care that the patient shall never be left alone. If he have been sweating freely, that must be checked; the amount of bedclothes may be reduced: if his joints have been enveloped with wool, it must be removed. In like manner any other too free evacuation must be stopped, as purging, or the too copious discharge from a blister. Nourishment must be given very frequently, but in small quantities, so as not to embarrass the stomach; and this should consist of beef-tea, arrow-root, milk; and frequently it will be necessary to conjoin with this wine or brandy, or porter when that has been an habitual beverage. If the patient be wakeful, sleep must be procured by the free administration of opium. These are the points to which you will have to direct your most watchful care; provide against your patient being allowed to exert himself beyond his strength; remember that it is in this state that patients often die suddenly by syncope, and remember to nourish and support them well. Eschew all local treatment to the head; even

the application of ice is calculated to do mischief, by depressing the heart's action.

When, however, the patient evinces a tendency to coma, then of course you will not use opium; then I would advise you to shave the head, and to counter-irritate it and the back of the neck, by sinapisms first, and afterwards, if you find it necessary, by blisters, pursuing at the same time those measures for the support of the patient which I have already pointed out, and which you may be assured are not less necessary in the comatose cases than in those in which active delirium prevails.

I have already told you that you must be careful in carrying out this general plan of elimination with the closest attention and regard to the powers of your patient's constitution. I allude to this subject again, for the purpose of mentioning to you a sign which has over and over again proved most valuable to me, in leading me to pursue an altered course of treatment. When the patient has begun to pass pale urine, in good quantity, either without precipitate, or with a greater or less quantity of pale lithates, you will almost invariably find that he will be the better for a more generous treatment, even although the articular affection still continue troublesome. You may give him ammonia, or quinine and sulphuric acid, and in many instances you may give wine; and I have been astonished at the rapidity of the progress of cases under this altered treatment: cases which had been stationary for two or three days, have, under the circumstances and treatment I have described, become convalescent in little more than forty-eight hours.

Medical Gazette, Oct. 20, 1848, *p.* 655.

8.—ON THE NATURE AND TREATMENT OF GOUT.

By Anthony White, Esq., late President of the College of Surgeons, &c.

[Mr. White states that he has had ample opportunities for the study of gout, having inherited a gouty diathesis, and having been for forty years the subject of frequent visitations of the disease. Before giving his own views, he quotes the propositions laid down by Dr. Holland, which he thinks well define the actual state of our knowledge as to the intimate nature of gout. They are the following:]

1. "That there is some part of bodily organisation disposing to gout, because it is an hereditary disease.

2. "That there is a *materies morbi*, whatever its nature, capable of accumulation in the system, of change of place within the body, and of removal from it.

3. "That though identity be not hitherto proved, there is a presumable relation between the lithic acid or its compounds, and the matter of gout; and a connection through this with other forms of the calculous diathesis.

4. "That the accumulation of this matter of the disease may be presumed to be in the blood; and its retrocession or change of place, when occurring, to be effected through the same medium.

5. "That an attack of gout, so called, consists in, or tends to produce, the removal of this matter from the circulation, either by deposition in the parts affected, by the excretions, or in some other less obvious way, through the train of actions forming the paroxysm of the disorder.

6. "That there is an intimate relation between the condition of gouty habit and the functions of the kidneys and liver, both in health and disease.

7. "And that the same state of habit or predisposition which in some persons produces the outward attack of gout, does in others, and particularly in females, testify itself solely by disorder of internal parts, and especially of the digestive organs."

[As to hereditary predisposition, Mr. White thinks that it is probable that the real evil transmitted by the gouty to their offspring is an unwholesome blood-making apparatus, tending to the generation of morbid matter. He says:]

On the whole, then, we may safely admit that hereditary gout is a disposition to generate a certain morbid matter within the body, whether that disposition be the effect of some abnormal organic condition, promoting its formation or impeding its due excretion, or of some transmitted impurity of blood, which tends, as usual in such cases, to reproduce and continue itself by vitiating the nutritive functions.

The same disposition, but created by other causes, must obviously exist in those cases in which gout occurs as an idiopathic disease. Its individual or ancestral origin is a circumstance which may influence the intensity of its development and its pertinacity in the system, but in no way affects its intrinsic nature. Whether hereditary or not, it presents the same general characteristics, and is of course attributable to the same material agent.

Setting out, then, from this cardinal principle of a *materies morbi* circulating with the blood, we have next to investigate its nature and its origin. And here we are struck on the very threshold of the inquiry, by the close affinity between the gouty and the lithic acid diathesis—an affinity so remarkable that a very general disposition prevails among medical writers to consider lithic acid as the true gouty poison, and to impute its presence in the system to the impaired action of the kidneys.

As to this latter notion, the arguments adduced in support of it appear to me to be based on a singular misapprehension of patent facts. The discharge of lithic acid and its salts in the urine is a salutary process; and while the kidneys are actively performing such a process, it is strange, indeed, to charge them with creating the offensive matter they only serve to remove. It is not from the presence of lithic acid sediments in the urine of the gouty, but from their absence, that we should be warranted in ascribing to defective

action of the kidneys the accumulation of that excrementitious matter in the system. If the blood was manifestly surcharged with lithic salts or their equivalents, while none such escaped in the urine, then, indeed, we should have reached the end of our inquiry in full assurance that the kidneys were the very matrices of gout. But it is not so in reality; and the most we can venture to assert is, that the renal functions, in common with others, are secondarily affected by the cause, whatever it be, of the gouty diathesis.

I think it the more necessary to insist on this point, as it is one on which so acute and lucid a reasoner as Dr. Holland appears to have fallen into error. "The kidneys," he says, "are evidently the organs of the body upon the disordered or deficient action of which depend those changes in the circulating fluids which have the closest relation to all the phenomena of gout." He would, I think, have been nearer the truth, if he had said that the kidneys are, of all organs, those whose secretions afford the most faithful and the most readily discernible evidence of the changes aforesaid.

[That the gouty and lithic acid diathesis are not identical, is shown, Mr. White thinks, by the fact that the gouty paroxysm may occur without any excess of lithic acid in the urine; and, on the other hand, the urine may be loaded for a long period with lithic acid deposits, while the patient has not a single symptom of gout. He says,]

The gouty poison, then, is not identical with lithic acid, but is so near akin to it that the chemical and pathological characteristics of the latter may probably yet serve as indices to guide us to the discovery of the former.

"Organic chemistry," says Dr. Holland, "has taught us how readily the elements out of which all animal matter is formed are displaced from one combination and enter into others; and how very slight, frequently, are the differences, indicated by analysis, between substances eminently noxious to the system, and those indifferent or beneficial to it. We owe, further, to recent experiments the explicit proof of what simple observation had partly shewn before —the remarkable effect upon the whole mass of the blood of minute quantities of certain matters brought into the circulation,—leading to the inference of analogous effects from an increased proportion of one or other of its principles accumulating or being unduly retained in the body. * * * These circumstances, now familiar to us, do certainly not identify the material cause of gout with any of the animal excretions just named [lithic acid, urea, the lithic or purpuric salts, &c.]; but they tend to concentrate our views towards them, and give a much more specific direction to future research. The assured connection of the gouty with the calculous diathesis,—the chemical nature of the concretions and deposits in the former, —and the evidence that these deposits often become in part a substitute for the more active forms of the disease: all concur in further sanctioning the same general view. If we cannot affirm that urea, the lithic acid, or other animal compounds circulating in the blood,

give cause to the phenomena of gout, under the most cautious reasoning we are at least entitled to assume, with some confidence, that these matters secreted from the kidneys *are the equivalents to gouty matter present in the system*—that they have certain proportion of quantity to each other,—and that upon their balance depend all the essential characters of the disease,—its modifications being determined by various causes; some of them topical, some belonging to general functions implicated in the effects of this common cause."

I particularly invite the reader's attention to the words above printed in italics. They imply that the morbid development of lithic acid and its salts may be due to the presence of some principle, altogether unlike them in sensible properties and chemical composition.

[Mr. White ascertained the true nature, as he believes, of the disease, by submitting to the old plan, as he says, of "patience and flannel," and observing what nature would do. He found, on several of these occasions, that he was attacked with vomiting and acrid bilious discharges from the bowels; and that immediate relief followed, proportioned in degree to the copiousness of the bilious evacuations. If the diarrhœa was too scanty, he took five grains of calomel; this produced the bilious discharge, and he was well again. To use his own words,]

The conclusion forced upon my mind by these facts, recurring again and again during a period of so many years, is, that not to the stomach, or the kidneys, or to the impaired functions of any other viscus than the liver, is the cause of gout ascribable.

[In corroboration of this view, Mr. White remarks, that all the esteemed specifics against gout have the common property of stimulating strongly the hepatic functions. This was thecase with the *eau medicinale* formerly so popular, and is a characteristic of the colchicum which was probably the active agent of that nostrum. Speaking more directly of the treatment of gout, Mr. White says,]

Latterly, it has been my practice to use colchicum in combination with other medicines: when I was in the habit of taking it singly, my dose was generally about sixty drops of the wine of the seeds, repeated every six hours. After three or four of such doses the bowels were acted on; the evacuations had the odour of the colchicum; deeply tinted, scalding bile was passed, and I was well, for I needed no more.

Now, if a spontaneous evacuation of bile operates critically to the relief of the gouty paroxysm; if five grains of calomel produce relief; if just so much colchicum or other medicine produces relief as is sufficient to cause a copious discharge of bile, then it is demonstrated that the diminished or altered state of the hepatic secretion, which is always a concomitant of gout, is not to be classed among the secondary phenomena of that disease, as pathologists have hitherto invariably supposed.

Acidity in the stomach is an unfailing element in the gouty diathesis. Now such a condition of that organ may, undoubtedly, react on the liver, and impede or vitiate its secretions. On the other hand, we know that a very important office performed by bile is the neutralization of the free acid, which is always developed in the stomach during healthy digestion, and is, therefore, a constant ingredient in chyme; only assuming a morbid character when it is excessive or otherwise abnormal.

The main object to be pursued towards the effectual cure of the gouty paroxysm, by the removal of its immediate cause, is the restoration of the natural functions of the liver, as indicated by a copious discharge of bile through the bowels. This object may be attained, more or less promptly and sufficiently, by the administration either of calomel or colchicum, or of some other potent deobstruent of the hepatic system. But here, as in other instances familiar to the minds of my readers, the principle of combining analogous remedies will be found strikingly advantageous. My own practice has long been to rely exclusively for the cure of gout on the following prescription :—℞ Hydr. chlorid., ext. colchici acet., ext aloes purificati aa. gr. j.; pulv. ipecac. gr. ii. M. et fiat pilula quartis horis sumenda.

Two or three of such pills are generally enough to produce a considerable disgorgement of the liver, which I then assist with one or two doses of the compound decoction of aloes. By this time the gouty paroxysm has either ceased, or there is a marked subsidence of all its distressing symptoms. The pills may then be administered at longer intervals, varying from eight to twenty-four hours, according to circumstances.

The treatment I have above described possesses the cardinal and paramount requisite of being effectual to the end proposed. In addition to this it is important to know that the combination of calomel and aloes with colchicum, while quickening and corroborating the specific action of the latter on the liver, seems also to neutralise all the noxious properties of that hitherto formidable medicine.

Medical Gazette, August 18, 1848, *p.* 279.

9.—ON GOUT.

By Dr. Robert Dick.

[Dr. Dick believes that the stomach derangement which usually accompanies an attack of gout, is not the cause of the said attack, but only a coetaneous effect with gout of a diseased condition of the blood. The following are his views of the pathology and treatment of gout:]

The history of a simple case of acquired acute gout seems to consist in a plethoric state of the circulation, usually owing to food too rich, plentiful, and stimulant, and to deficient exercise; to the blood

being, moreover, unduly charged with filbrine and red globules; to a thence-resulting partial decomposition of that fluid, or at least a disturbance of the physiological equilibrium of its normal constituents. Hence a tendency to, and a necessity for, a more than usual elimination by the kidney of uric acid and the urate of soda. These, however, so superabound, that the kidney cannot excrete them sufficiently largely or quickly, or becomes fatigued in so doing, as every organ is apt to become whose function is too continuously called into exercise. In consequence, uric acid and the urate of soda, not finding a physiological outlet by the kidney, are ready, as the event shows, to be deposited where a local inflammation affords an opportunity, that local inflammation being itself but an effect of constitutional disturbance, caused by the superabundance of uric acid and urate of soda in its circulation.

What circumstances determine the preference of gouty inflammation for the extremities are not altogether clear. It may be, that in these parts the circulation being more feeble, and the animal temperature lower than elsewhere, the deposition of urate of soda is facilitated. Under this supposition it will be the deposited urate of soda that causes the local inflammation, not the inflammation that leads to the deposition of the urate of soda. Which of the two phenomena is the primary and causal one, it is not easy to determine. It may be, that now the one and now the other is so. It is uncertain, also, whether in all cases urate of soda is actually deposited about the affected joints, or remains in a state of solution. That it is sometimes deposited is certain; but in the early gouty paroxysm, and before the disease is chronic, it is re-absorbed. In chronic cases, however, this result does not follow; it remains where it has been deposited, forming what are called chalkstones, and permanently injuring the play of the articular tendons and ligaments, and, consequently, the movement of the joint. But though the enlargement and stiffening of the joints is in part owing to the deposition of the urate of soda, it is also, in part, due to exudation of the plasma or coagulable lymph, by which cellular tissue is solidified, tendons are thickened, &c.

In many cases, the arthritic is associated with a neuralgic diathesis, and I have often observed, that in such instances moral irritation of a depressing kind will strongly predispose to an attack. In those also who are highly charged—if the phrase may be used—with a gouty disposition, a thousand trivial circumstances will develope it, in like manner as we observe in some people erysipelatous inflammation follow any slight abrasion, &c., of the skin. I have seen the slight pressure of a new boot, a long walk, in which the articulations and muscles of the foot were too much exercised, and even causes less important, induce attacks of gout. With its speedy occurrence after an incautious use of particular wines or articles of food, every practitioner is familiar. Champagne and claret soonest induce it in many cases. Of all vegetable acids, the malic is the one which, according to my observation, is most objectionable in the case of gouty subjects. I believe that in these cases, acids act

detrimentally, by hindering the due elimination of uric acid and its salts by the kidney.

Gout presents several varieties or modifications, according to the age, constitution, vigour, and habits of the patient. Thus we have acute regular gout, chronic gout, retrocedent or metastatic gout, and what I shall call ill-developed or imperfect gout. A short notice of these, and of the treatment required respectively by each, will conclude this paper.

Acute regular gout occurs, in its simplest and best characterized form, in patients about middle life, and of sound constitution. For some days, or it may be for a week or two before the attack, there are symptoms of gastric derangement, such as loaded tongue, ill taste in the mouth, irregular bowels, urine high-coloured, scanty, or turbid, and depositing a red sediment. After some such symptoms, the patient is seized, often suddenly, with an acute pain in the foot or hand, usually in the ball of the great toe. The part becomes red, hot, swollen, shining; it throbs; the patient is restless and feverish; he does not sleep till towards morning, when the pain somewhat subsides, perspiration occurs, and the patient, except in severe cases, has some relief till the ensuing night, when the same symptoms recur. These diurnal or nocturnal attacks continue during from two or three to eight or ten days, after which, the patient regains his usual health, and soon recovers the use of his foot, though sometimes there remains, for a longer or shorter time, a weakness in the part. In consequence of the restrictions of diet, and use of medicine, the patient often feels himself more alert and in better spirits, and with a better appetite than before, and he is apt erroneously to impute these effects to the arthritic attack.

The treatment should commence with a purgative, which may be a smart one if the patient is robust and plethoric, and the attack is acute. From ten to twenty grains of jalap, and from three to eight of calomel, or any other purgative of corresponding energy, may be ordered, though hardly anything else adequately replaces mercury as a purgative in the outset of gout. The above dose should be followed, in from two to five hours, with a draught, consisting of equal parts of the infusions of rhubarb and senna, containing a drachm of sulphate of potass, and a scruple of the carbonate of that alkali. After this, a diaphoretic tisane, consisting of one or two drachms of ipecacuanha wine, or four drachms of the solution of acetate of ammonia, in a pint and a half of weak tea, is to form the patient's drink. The patient is to eat little or nothing for twenty-four hours, and no further use of purgatives is to be made, at least for a day or two. At night, a full dose of Dover's powder may be given. This will relieve pain, secure sleep, promote diaphoresis—each an important object. On the third day, the use of colchicum may be begun. I have always found this most efficacious when given simply in doses of from twenty to sixty drops of the wine in four or six ounces of distilled water, along with from five to ten grains of the nitrate of potass. To this, two

drachms of the compound spirit of juniper, and half a drachm of the spirit of nitric ether, may be added. Few persons can bear or will require a dose of sixty drops of colchicum wine oftener than twice in the twenty-four hours. Many cannot endure a half or third of that quantity.

Chronic gout requires much less active treatment than acute. But nearly the same medicinal agents are to be had recourse to in either sort. However, some slight modifications must be observed. The diaphoretics in chronic gout may be more stimulant than in acute. Thus the compound tincture of guaiacum, which is even hurtful in the latter, is well borne in the former. Opiates may be also more freely used. And now, also, alteratives become necessary, the digestive organs beginning to participate in the general derangement; the biliary and other secretions to be less regular and efficient, chylification less perfect, and defæcation less active. Friction with a pommade, or soft ointment of four grains of veratrine in one ounce of lard, may be applied to the affected part; and a solution of veratrine, consisting of one grain thereof in two ounces of distilled water, a twelfth to an eighth part to be taken twice or thrice a day, or oftener, in a draught.

The treatment of metastatic gout is simple, though, not for that reason, always satisfactory or successful. What I mean is, that the indications are obvious. We must endeavour by sinapisms, hot pediluvia, blisters, stimulant frictions, to keep the gout in the feet or hands, or recal it thither.

If the stomach is attacked, we must give cold or iced drink, with opium in it, the feet being simultaneously plunged in hot water with mustard dissolved in it. If the head is the seat of metastasis, while the feet are treated in the manner just stated, cold evaporating lotions must be applied on the temples, forehead, and occiput. If the heart is affected by metastatic gout, there is great danger, for we know not what to do. The best way is not to interfere with the heart at all, but vigorously to apply derivation and counter-irritation to the extremities. As to the practice recommended by some of giving hydrocyanic acid in metastasis of gout to the heart, it is bad advice, and is not more reasonable than if, with a view to make a paralytic man steady, we made him drunk.

Ill-developed, or *covert* gout, (we name it so in contradistinction to *overt* gout,) is not the least important or least common form of this malady. It is, perhaps, the most frequent, and, in some senses, the most serious. Considerable observation has satisfied me, that to smouldering gout are due many anomalous affections and pains which go under the names of hysteria, hypochondriasis, gastrodynia, neuralgia, cephalalgia, tic douloureux, spinal disease, nephritic derangement, &c.

Lancet, *May* 20, 1848, *p.* 548.

10.—ON CHLOROTIC ANASARCA.

By Dr. J. F. Duncan, Assistant-Physician to Mercer's Hospital, Dublin.

Anasarca may be divided into three distinct species which differ essentially in their nature, and require very distinct modes of treatment. The first is the inflammatory, such as is met with in connexion with scarlatina and ordinary exposure to cold: the second is the mechanical, arising from compression of important blood-vessels; and the third is that which depends upon peculiar alterations in the quality of the blood. In this species may be comprehended all those cases which arise from debility, from anæmia, from granular degeneration of the kidneys (this being really a secondary affection), and those, of which the present is an instance, which depend upon chlorosis.

[After remarking how important a knowledge of the blood has become, since the revival, in late years, of a rational humoral pathology, Dr. Duncan, speaking of the blood, observes:]

There are three principal ways in which this fluid, so essential to health, may be altered to produce disease. In the first, the relative proportions in which the healthy elements exist in it are altered; in the second, some of them are entirely absent; and in the third, substances altogether foreign to its normal constitution are admitted into it.

Of the first of these, we have examples in chlorosis and anæmia two diseases generally confounded together, but which have been recently shown by Sir Henry Marsh, in an able paper in the fourth number of the Dublin Quarterly Journal, to differ essentially in their nature, as indicated by the specific gravity, colour, consistence, and temperature of the blood, and also by the various morbid affections which are associated with each.

The altered condition of the blood which prevails in chlorosis has a double tendency to produce dropsy. It is both thinner in its consistence and less stimulating in its properties than in health. The one of these facilitates transudation through the coats of the blood-vessels, and the other, by retarding the circulation, brings the current more directly under the influence of gravity so as to favour accumulations in those parts of the body which are most dependent. When the blood is rich and nutritious, and sufficiently stimulant, it imparts tone to the vessels, especially the veins, and keeps them in a state of constant contraction, the valves perform their office efficiently, and no stagnation can occur; but when the blood is in an opposite condition, as after protracted fevers and exhausting diseases, the very reverse takes place, the vessels become relaxed and distended, the valves are consequently rendered inefficient, and anasarca necessarily follows.

Time will not permit me to dwell upon the many important practical points contained in Sir H. Marsh's paper, which I cannot too strongly recommend to your careful study; but there are two common errors connected with chlorosis which he especially refutes, and to which I wish for a moment or two to call your attention,

The first is the idea that there is an absolute diminution in the quantity of blood in this disease. So far is this from being universally the case, that he states it is not uncommon to find the circulating fluid actually increased in amount, though its quality is deteriorated. The practical value of this point is, that it is often the shortest and most effectual mode of improving the blood to commence by a small bleeding. The removal of a portion of the thin and watery elements makes room for the easier introduction of those saline and mineral ingredients which give consistence to the whole. When the absorbents are surcharged, it is difficult for them to act at all, much less with that energy which is necessary to bring about a speedy return to the healthy condition of their contents.

While, however, the general principle is kept in view, that a suitable abstraction of blood, even in chlorosis, may be productive of advantage, the greatest caution must be exercised in resorting to its use, because the enfeebled state of the system does not readily bear so debilitating a remedy, and it has often happened that protracted or even permanent injury has resulted from its injudicious adoption.

The same object, however, may be obtained, as it appears to me, with less risk and with equal certainty, in another way—namely, by the use of purgatives of a mild but effective character.

The superiority of this practice to the other will be apparent on a little reflection. You cannot use the lancet at all without taking away from the patient some portion at least of the globulin, the most valuable part of the blood; whereas hydragogue cathartics merely act upon the watery element without affecting any of the other ingredients contained in it.

The other error is, perhaps, not so common now as it was formerly, but it still exists among many of the less educated practitioners—namely, supposing that the disease depends upon suppression of the catamenia—a symptom that usually attends it.

The truth is, that whether this secretion be entirely suppressed or only reduced in amount, which is the more common condition of the two, the change is the consequence of the disease, not the cause of it. The impaired energy of the nervous system which results from the unstimulating character of the blood, leads to torpor of the whole glandular apparatus, as indicated by the costive state of the bowels and the diminished quantity of urine, as well as the symptom immediately under consideration. Nor is this error of a speculative character merely: like the former, it leads to important practical mistakes. Sir H. Marsh tells us he has known instances where the whole efforts of the physician have been expended upon the restoration of this function to its proper state, and expended in vain; the patient's condition having been injured, while the wished-for object has not been obtained: whereas when the state of the constitution has been improved by judicious management, the menses reappear naturally, and resume the healthy character both as to quantity and frequency.

Dublin Medical Press, May 31, 1848, *p.* 337.

11.—*On the Treatment of Anasarca by Incisions.*—By M. Lombard, Liége.—[M. Lombard advocates the use of incisions in cases of anasarca, and states that when ascites co-exists with anasarca, not only is the latter palliated or cured, but in many cases the former also disappears. He says:]

We may lay it down as a rule that the ascites disappears with the anasarca when it is consecutive to it, and does not depend on abdominal disease, except in the case of aneurism of the abdominal aorta, which comes under the law just laid down. I think that further observations will authorise us in ranging under the law which governs dropsy depending on diseases of the circulating system that which comes on in cases of albuminous urine, in anæmia, and the different cachectic conditions which are the result either of an alteration of the blood or of general causes; but the number I have already collected does not appear sufficient to establish it as yet.

I insist upon the circumstance of the disappearance of the abdominal effusion, because, as I have already said, that the fact, if it has been observed, has been considered merely as an unusual case, without perceiving that it is a general fact; and also because in several cases where I proposed the removal of the serum by incisions, the proposal was rejected as dangerous and not capable of affecting the ascites. You have been able to assure yourselves that these incisions are by no means dangerous, and that they have the power of removing the ascites along with the anasarca.

"Why," you will say, "if it is true that certain forms of dropsy disappear after puncturing the legs, is paracentesis always performed?" The answer is easy; because it is not generally known that this may occur, and if such cases have been observed, they have been considered as exceptions. Perhaps, also, those who have tried this method have employed it where the original disease was in the abdomen, and consequently without success. They have not examined if the anasarca has preceded the ascites, which is indispensable for the success of the operation. Further, I have observed a curious case connected I think with those before us. It was a case of hydrothorax with anasarca, which disappeared after the evacuation of the serum by incisions in the legs, although it had previously resisted active treatment. In this case the pleuræ became filled during the progress of anasarca dependent on disease of the heart.

From the earliest periods the idea of treating dropsies by openings in the skin has been entertained. Nature, whose proceedings were followed by the ancients in their operations, taught them it, for anasarca sometimes disappears from natural rupture or gangrene of the over-distended skin. It is very probable that Rondelatius who, it is said, was the first to entertain the bold and happy idea of opening the abdominal cavity to discharge the serum it contained, was led to it as well by the success of scarifications in dropsy of the cellular tissue, as by the thinning and spontaneous rupture of the umbilical cicatrix which he might have observed.

Why, then, has such an old-established and often so successful an operation been so much abandoned? The reasons are laid down in all authors—the fear of gangrene, of erysipelas, of sloughs, of troublesome ulcerations; and they resort to the operation only when all other means have failed and the skin is on the point of tearing, and then they merely make punctures or superficial scratches which permit the serum to escape in a slow and incomplete manner. This seems to involve several errors. First, is the delay; when the skin has been long distended, it loses its vitality, and in many cases sloughs form, when neither punctures, scarifications, blisters, cauteries, nor other means had been used which might have produced them. Secondly, the openings made are insufficient for the prompt escape of the serum, and inflame with great rapidity, causing great pain to the patient, and frequently giving rise to dangerous erysipelas.

All these disadvantages may be avoided by operating early, and instead of punctures, making four or five deep incisions down to the fascia, the third of an inch in length, in each leg, in the most depending position; the patient also must be in bed as little as possible, for there he is always wet and cold, and the position is unfavourable for the escape of the serum. He should be seated in an arm-chair near the fire, the legs naked and resting on cloths, and when we have wished to ascertain the exact amount of fluid that has escaped in the twenty-four hours, we have placed them in a foot-bucket. When the serum has all drained away, the legs should be supported by a roller.

I have followed this plan for six years with perfect success in cases of anasarca, and, as I have already observed, the attending ascites has sometimes also been cured.—*Gazette des Hôpitaux.*

Dublin Medical Press, June 7, 1848, *p.* 361.

12.—*On the Administration of Diuretics in Some Cases of Dropsy.* —By Dr. Jonathan Toogood, Torquay.

[Dr. Toogood relates some cases which, after resisting ordinary diuretics, were cured by remedies which he mentions. The first was that of a man who had tertian ague, and was generally anasarcous. After the ague had been cured by the use of bark, various purgatives and diuretics were administered for the anasarca, but without effect. Dr. Toogood tells us—]

As every variety of diuretic had been repeatedly and ineffectually tried, I despaired of his recovery, when it occurred to me that the late Dr. Parry, of Bath, had recommended the fresh squill in a variety of cases, which he stated to have been successful in his hands. Six grains of fresh squill, in infusion of gentian, three times a day, considerably increased the flow of urine in four days, and by gradually augmenting the dose, he was emptied, and recovered perfectly.

I may add that this medicine was given by Dr. Parry, in some cases, to the extent of thirty and forty grains a day, and that he

often prescribed it in asthma, combined with almond emulsion, occasionally adding to each dose a few grains of powdered myrrh, with the best effect.

[Another case was that of an unmarried lady, fifty years old, whose feet became anasarcous after exposure to cold. Notwithstanding the exhibition of various diuretics, especially squill and digitalis, the effusion increased, and extended to the abdomen, arms, and face.]

The urine coagulated much more, and more firmly than is common in dropsical cases, and the specific gravity was greater than on these occasions, being 1018. This excess of coagulum and specific gravity indicated a lurking inflammation, and as no organic derangement could be discovered, granular disease of the kidney was suspected. In this stage of the disease, a consultation with Dr. Blackall, a great authority in such cases, was held, who recommended that the capsules of copaiba should be taken two or three times a day, that the cream-of-tartar liquor should be drank very freely, and that she should use the vapour bath, beginning at 190°, and increasing it to 110° and upwards, if it could be borne. A moderate diet was prescribed, with two or three glasses of hock daily. She rapidly improved under this judicious plan of treatment, and has continued free from any return of disease up to the present time. The urine was frequently tested during the progress of her recovery, and the coagulation gradually ceased, and ultimately disappeared entirely.

Provincial Medical and Surgical Journal, Sep. 6, 1848, *p.* 484.

13.—*On the treatment of Sea Scurvy.*—By Dr. Foltz.—The whole treatment of sea scurvy may be summed up in a few words. Supply the system freely with protein, by giving patients freely those vegetables in which it most abounds. Many English naval surgeons maintain that vegetable acids alone are not sufficient to cure scurvy, and that a portion of fresh animal food is necessary for a cure. In the first part of the opinion we cannot concur, and although fresh animal food will accelerate a cure, and should always be resorted to when it can be procured, yet the vegetables are all that are necessary in such cases; and where the fruits and vegetables in a recent state cannot be obtained, starch and lemon juice, both of which can be carried at sea in sufficient quantities will give us all that is required for the prevention and cure of scurvy on board ship, when combined with cleanliness, ventilation, abundance of water, and cheerfulness. Where there are mental despondency, dejection, and disappointment in a crew suffering from scurvy, as was the case with that portion of our crew whose period of service had expired, almost every effort to restore the health, so long as these depressing passions continue in operation, will be unavailing. The humane physician and the prudent commander would in such cases recommend a discharge of the crew, and a run on shore.

Medical Gazette, May 19, 1848, *p.* 849

14.—ON SOME MORBID CONDITIONS OF THE BLOOD.

By Dr. A. B. Garrod, Assistant Physician to University College Hospital.

[Dr. Garrod distinguishes one class of diseased blood by the following characters :—]

"Blood in which matters formed by the metamorphosis of the tissues during the performance of the vital functions, or produced during digestion and nutrition, and which are destined for speedy elimination, become increased in amount, and hence give rise to various morbid symptoms." We have seen that most of these matters are in reality normal constituents of the blood, but in health their amount is exceedingly small. This is true with regard to the urea, uric acid, sugar, fat, &c.; their proportion, however, may become much augmented, and when such happens, a morbid condition of blood is produced. The most productive cause of such states is the imperfect performance of some one or more excreting function, due either to functional or organic disease in the excreting gland. Thus the urea and uric acid should be thrown out by the kidneys as soon as formed. When, however, the function of these organs are disturbed, one or more of these matters are retained, giving rise to a state of blood, called uræmia. If the excretion of the bile, or, rather, the colouring and fatty matters of that fluid are impeded, these are retained in the blood, and cholæmia is produced, and so with other excreting functions. Again, we have found that sugar is most probably a normal constituent of blood; that the quantity contained in it depends much on the time from the ingestion of food; still in health its amount is always very small, and with great difficulty detected. In certain pathological conditions of the system, however, the formation of this principle becomes greatly increased, or its destruction or resolution into carbonic acid and water greatly diminished; it is then found in the blood in excess, and afterwards forced to seek some abnormal channel for its elimination—an office chiefly performed by the kidneys. Hence the presence of sugar in the urine becomes the most prominent symptom or sign of the existence of this pathological condition of the body, which is called melitæmia. The same remarks apply to that state of blood called piarhæmia, where there is a great increase in the amount of fatty matters. We shall make the following subdivisions of this form of diseased blood:—

Uræmia.—Where some of the principles of the urine are contained in the blood, in quantity far above the normal average.

Cholæmia.—Where certain constituents of the bile exist in the blood in increased proportion.

Melitæmia.—Where sugar is found in excess in the blood, and is likewise contained in the urine.

Piarhæmia.—Where the fats are greatly augmented.

Uræmia.—(1.) *Blood containing Urea.*—In healthy human blood, drawn from the living body, I have found that the urea can only be obtained in most minute quantities: thus in one case where I endea-

voured to determine the amount quantitatively, the proportion of the nitrate of urea from 1500 grains of serum was only 0.015; and taking the amount of urea in the nitrate at 50 per cent., it would give for 1000 grains of serum only 0.005 grains of urea. In many diseased conditions of the habit, the amount of this principle becomes very greatly augmented. The only cause of this at present known appears to be defective action of the kidneys, produced either by functional or organic disease; for we have no evidence that an increased formation of urea in the system could alone produce this state of blood, independent of impaired renal action; nor will the administration of large quantities of urea give rise to any of the symptoms which have been considered as characteristic of the existence of an abnormal quantity in the blood. Sometimes when the urea is increased, the other constituents of the urine are also found in the blood. This is especially the case in those acute affections where suppression of urine occurs; here, even, the odoriferous principle can be detected, especially during the evaporation of the serum; at other times urea may exist to a large amount, and yet most of the other principles may be nearly absent; such a state is seen in some cases of Bright's disease. The diseases in which urea has been found, are the various forms of albuminuria, as Bright's disease, congestion of the kidneys occurring after scarlatina, or from cold, &c., also in cholera, plague, some cases of fever, as typhus and yellow fever, and occasionally in gout. There are doubtless many other diseases, besides those I have just mentioned, in which urea exists in increased proportions; but as yet the subject has been but little investigated.

Albuminuria.—In Bright's disease, the blood has been repeatedly analyzed by various observers, and urea has been almost constantly found in it. We have already had to notice some of the peculiarities which the fluid exhibits in this affection—viz., the deficiency of the albumen in the serum, and its consequent low specific gravity. What has been determined as yet by Christison and others as to the condition of blood in the different stages of Bright's disease, or granular degeneration of the kidneys, may be thus stated:—In the first stage, when inflammatory affections are present, the blood on coagulation has a buffed and cupped clot, the serum is often turbid, of low specific gravity, and contains a considerable amount of urea. The buffed and cupped clot depends chiefly on the increase of the fibrine accompanying the inflammatory affections; the low specific gravity of the serum is owing to the deficiency of the albumen; and the excess of urea to the injury which the excreting function of the kidneys has experienced, and the diminished power of throwing off this body. Afterwards, as the disease advances, the clot becomes small and the serum in excess; this is due to the anæmia induced from the constant waste of the nutritive principle of the blood which passes unchanged through the kidneys; the serum is stated sometimes to recover its density, but generally it remains low; the fibrine may return to its normal average or not, according to the state of system as to inflammatory disease. The urea may at times

decrease in amount, but generally it can be shown to exist in considerable excess.

(2.) Blood containing Uric Acid in Excess.—I have before told you, that uric acid seems to be a constant constituent of healthy human blood, but that the proportion in which it exists is usually very small, appearing to depend much on the time which has elapsed between the ingestion of food and the abstraction of the blood. In some diseased states of the system, however, it accumulates, and then appears to give rise to certain morbid symptoms. The increase in the amount of uric acid in the blood may be caused by functional or structural disease of the kidneys; thus, where there is suppression of urine, as occurs in some cases of Bright's disease. Again in the early stages of this affection, and in simple congestion of these organs, its elimination is often retarded; but then it is not alone retained, for, along with it, other constituents of the urine are always associated. There is, however, one morbid state where it seems to be contained in large quantities in the blood, and not thus accompanied by these other matters; this disease is gout. In June, 1847, when examining the blood of a man suffering from this affection, to which he had been for some years a martyr, I found the presence of uric acid; and it was then shown to exist in the form of urate of soda, and as such could be obtained in a crystalline state. From 1000 grains of serum 0.05 gr. was obtained, though much was lost in the experiment.

Afterwards it was found in many other cases of gout, and in quantities very much larger than in health, or in any other disease, except where the functions of the kidneys were entirely suppressed. The paper containing the details of the original analyses on this subject was read before the Royal Medico-Chirurgical Society, and will appear in the ensuing volume of the *Transactions*. The conclusions which I then drew were—

1st. That during an attack the blood always contains uric acid, and that this body may be crystallized from it in the form of urate of soda.

2nd. That the uric acid is diminished in the urine before and during a gouty paroxysm.

3rd. That in those subject to chronic gout with tophaceous deposits, the uric acid is constantly present in the blood, and deficient in the urine, both absolutely and when compared with the other organic solids, and that the deposition of the chalk stones appears to depend on an action in or around the joints, vicarious to the uric acid excreting function of the kidneys.

4th. That from the blood of gouty patients, urea may sometimes be obtained (in quantities greater than in health) when no albumen is present in the urine, which may perhaps explain the frequent occurrence of œdema with gouty inflammation, a symptom which distinguishes it from most of the other forms.

The other diseases in which I have found the proportion of uric acid increased in the blood are cases of albuminuria; and from the examinations as yet made, this increase seems to be greater in albu-

minuria depending on congestion of the kidneys, as from scarlatina, &c., than in the chronic cases of granular degeneration of these organs, unless very much advanced. The quantitative analyses in these cases will be found in the paper I have just referred to; the results, however, may be summed up as follows—viz.: "That in albuminuria the amount of uric acid contained in the blood is generally augmented—sometimes but slightly, but at others to a considerable degree; but that even then the condition of the blood differs from that in gout, as the other elements of the urine are also present."

Cholæmia.—The bile consists of two distinct portions, one constituting the true bile, not an excrementitial body, but destined for the performance of some important offices in the economy, and for reabsorption; the other consisting of the colouring principle, a resinous matter, and cholesterine, which are found in healthy fæces, and appear to be entirely excrementitial. The presence in the blood of the former body, or true bile, has never been very satisfactorily proved, though Enderlin has stated that he detected it in the blood of oxen and calves. It is very probable that, like urea and uric acid, it is always present in small quantities; but owing to our not being able to detect it so readily as we can these bodies, its presence has been overlooked. Simon has shown that it must exist in proportion much less than one-thousandth part of the weight of the blood; for he could readily detect bile in the blood when only half a grain of inspissated gall was added to 500 grains of that fluid. Whether in certain morbid states of system its quantity becomes increased, we are not able to say; but that such an increase does not take place in jaundice we have many experiments to prove. We have no reason to suppose that in this disease its amount would be augmented, for icterus depends on some obstruction either to the secretion or excretion of the excrementitial portion; and the true bile, in such cases, would not be likely to be altered in amount. The only circumstance which I can suppose capable of causing its accumulation in the blood is the imperfect performance of the respiratory function, and it would be in slowly asphyxiated conditions that I should look for it.

Blood in Jaundice.—Icteric blood has been subjected to many examinations, and in all cases the bile pigment has been discovered. To prove its presence, we scarcely need the aid of chemistry, the colour of the serum being sufficient, which, in severe cases becomes dark red, in thin layers, exhibiting a bright orange appearance: nitric acid produces in it a peculiar change, causing it to become at first grass-green, then blue, red, and yellow.

The causes of this condition of blood appear to be either some impediment to the secretion of this colouring matter, as happens in certain states of the liver; or obstruction to its excretion, as from gall-stones, inflammatory condition of duodenum, &c., and its consequent re-absorption into the blood. It then acts as a foreign body, and is thrown out by other channels, especially by the kidneys and skin, sclerotic coat of eye, &c. The urine, therefore, becomes very dark from its presence, the skin coloured, as also the

sweat which then stains the linen; but in the fæces it is very deficient, or even altogether absent. In jaundice, the amount of fats in the blood is generally much increased.

Piarhœmia.—We have seen that healthy blood always contains fatty matters, consisting of seroline, cholesterine, phosphorized fats, margaric and oleic acids, the two latter, partly free and partly saponified; that the average amount of these bodies in health is about 1.6 in 1000 parts of blood; and that the serum is usually quite transparent; it may, however, become turbid, owing to fatty matters derived from the chyle, on which subject Dr. Buchanan has made the following remarks. In the first place, he finds that the serum of the blood derived from a healthy man when fasting is quite transparent, and of a greenish yellow tint; that a mixed rich meal renders the serum white and turbid, an appearance which may commence half an hour after the meal, and continue ten or twelve hours, or even longer, according to the quality of the food and the state of the digestive functions; that starch, sugar, and other vegetable substances containing no oil do not produce this whiteness, nor albumen, fibrin, or casein, when free from fatty matters; that oils when mixed with protein or amylaceous compounds render the serum milky; gelatine also has the same effect, but this result is not conclusive, as some fat might have been mixed with the gelatine in the experiment.

Such a condition of the blood, however, would not be styled piarhæmia, a title only given to blood in which the fatty matters are greatly and constantly in excess; this state is sometimes found in Bright's disease, diabetes, some cases of cholera, and many inflammatory affections. The cause is at present but little understood, but it seems to be owing to some defect in the respiratory function, preventing the conversion of these bodies into carbonic acid and water. This explains why the excessive use of alcoholic fluids tends to produce fatty blood, a fact which has been tolerably well established, for in such cases the alcohol would take the precedence of these matters in becoming oxidized.

Under the microscope, this kind of blood generally exhibits the presence of the fat in the form of oil globules; but this is not always so, for in a case which recently came under my notice, where a very large amount of fat was contained in the serum, only a granular appearance was seen, which might be mistaken for precipitated albumen; on warming the fluid, however, fat globules became evident.

Melitœmia, where sugar is present in increased quantities.—I have before mentioned the existence of sugar as a normal constituent of the blood, which I think has been sufficiently proved, although in a healthy state of system its quantity is undoubtedly extremely small, and not to be detected, except a few hours after a meal containing amylaceous principles. In some pathological conditions, however, sugar appears to be formed in much greater abundance than in health, or its resolution into carbonic acid and water to be

somehow impeded; and hence its accumulation in the blood, and its elimination through abnormal channels, especially the kidneys.

Blood in Diabetes.—When diabetes was first shown to be accompanied by a saccharine state of the urine, it was supposed that this principle was a product of some abnormal action of the kidneys. This view was strengthened by the unsuccessful search for it in the blood. At the present time, however, we are no longer able to refer its origin to these organs, as it has been proved by many observers to be present in the circulating fluid, and that it can be separated from it.

Blood containing Lactic Acid.—In many diseased states, it has been supposed that excess of lactic acid existed in the blood, but this was at a time when this acid was thought to be a constituent of most of the animal fluids, and when its presence was rather assumed than proved. I am not aware that it has ever been demonstrated to exist, although there is great probability that such is the case even in healthy blood, for we have shown that it is a constant constituent of muscular flesh; its quantity in health must be very small, as it would doubtless soon become converted by the respiratory process into carbonic acid and water. Perhaps its excessive formation or imperfect destruction may sometimes be the cause of a morbid condition of the blood, and rheumatism has been frequently supposed to be somehow connected with an excess of this acid in the system.

An acid state of blood has now and then been found, and such a condition has been presumed to depend on free lactic acids; this possibly may sometimes be true, but no doubt it more frequently results from the presence of free fatty acids. Great obscurity still hangs over this subject, and many accurate observations are required before our information on these points can be considered to be at all satisfactory.

Lancet, Aug. 19, 1848, *p.* 197, *and Aug.* 26, *p.* 225.

15.—ON THE DEPURATION OF THE BLOOD.

By Dr. Golding Bird, F.R.S., &c.

[The following views of this able physician are exceedingly interesting; and when carried out in practice will enable us to treat many obscure diseases with more confidence and success. Speaking of the probability of our being "able ultimately to reduce all the non-organized products of vitality to recognized chemical laws, and thus to produce them at will," Dr. Bird, referring to a former Lecture, says—]

You will remember, I shewed you urea prepared artificially from blood. I prepared before you the aromatic oil of the Spiræa ulmaria, or queen of the meadows, by oxidising the active element of the willow bark. I shewed you how to procure the active and

fœtid principle of the Valerian, by the oxidation of the oil obtained during the fermentation of grain. I exhibited to you a fluid exhaling the delicate fragrance of the pine-apple, prepared from the acid of rancid butter. I pointed out to you the mode of converting the oil of mustard into the oil of garlic; and the last illustration I occupied your time with, was the artificial formation of the aromatic oil which is the source of the fragrance of the Gaultheria procumbens, from wood-splint, and a body attained by oxidating salicine or indigo with caustic potass. Easily and readily could I have multiplied such illustrations, but the time at my command would not justify my thus trespassing upon your patience: I cannot, however, yet part with the oil of the Gaultheria, without drawing from it another useful lesson, and one which will give us much instruction in our views of the constitution of the products of organic laws.

I have shewn you that this oil may be regarded as a spiroylate (salicylate) of oxide of methyle; but the formula for this substance may also be resolved into that of hydrated anisic acid—a body obtained by the oxidation of the well known oil of aniseeds.

$$\underbrace{C_{16}\,H_7,\,O_5}_{\text{Anisic acid.}} + \underbrace{HO}_{\text{Water.}}$$

Now, hydrated anisic acid has the property of being resolved into carbonic acid, and an aromatic oil called anisol, when dropped on a body having an affinity for carbonic acid, as barytes. This enables us to perform another chemical miracle: for on dropping the oil of Gaultheria, whether natural or artificial, on some hot baryta, its elements assume a new arrangement, and instead of being separated into salicylic acid and oxide of methyle, they are resolved into carbonic acid and anisol; thus

$$C_{16}\,H_8\,O_6 = 2\,CO_2 + \underbrace{C_{14}\,H_8\,O_2}_{\text{Anisol.}}$$

The odour of the oil of wintergreen becoming immediately replaced by the peculiar pungency of the anisol.

If we are thus able to metamorphose one body into another by the abstraction or addition of one or more elements, we shall find less difficulty in understanding how bodies possessing the same aggregate number of elements, but differently arranged, may be converted into each other, and of which the chemistry of the living organism furnishes so many examples.

In this glass is a specimen of uric acid formed in the organism of a huge serpent, in the Zoological Gardens. A portion of this very substance has been oxydised by heating it with some peroxide of lead—a rearrangement of its elements occurred, and thus we have the lustrous crystalline body I now shew you—allantoin, the characteristic element of the allantoic fluid of the fœtal calf.

It would be an easy task to bring before you a host of such examples: those I have adduced will be, I hope, sufficient to bring before such of my auditors, as have not had time to give much attention to the later researches in organic chemistry, ample evidence of the progress already made towards at least imitating in the laboratory of the chemist, the results obtained in the laboratory of life. It is true that our very success gives us a lesson of humility; we cannot, and in all probability never shall be able to take the crude juices absorbed by the plant from the earth, and convert them into the same elements which are elaborated from them by the living organism; all that human science has yet done, is to take one of the proximate results of a living being, and metamorphose it into others; still, I am anxious to impress upon all who are inclined to smile at the application of chemical reasoning to physiology, that this is all we presume to be able to do when attempting to explain the probable formation of the elements of excretions from the blood or from the food. I am now anxious to apply such results to one of the most important circumstances connected with the treatment of the disease—viz., our power of modifying the excretions, and controlling, to a certain extent at least, one mode by which that great and important element of health, the depuration of the blood, is effected. I am anxious, indeed, in this place, to develope the idea, which for years I have endeavoured to work out, that there is something beyond the mere excretions of the liver, the skin, the lungs, or the kidneys, to be regarded in the great function to which I have alluded,—that although in the broadest and most general view it is correct to admit that the liver depurates the blood of excessive carbon, and the kidneys of nitrogen, yet that there is an important and serious fact, far before this, to be noticed, although overlooked and neglected. This fact is the one I am now anxious to develope,—that if the excretions be carefully examined *quoad* their chemical constitution, it will be found that each depurating gland can perform more than one function,—that although under ordinary circumstances, a given organ may chiefly excrete carbon, yet that it also excretes a certain proportion of some other element; and in disease or imperfection of the organ, whose normal function it is to excrete this particular element, its elimination may be actually effected by that structure, which in a state of health secerns a minimum of it. Thus, I would not only, with the generally received physiology, invest each depurating organ with its particular function, but I would do more, and regard each chemical element of an excretion as performing a particular office. I hope thus to be able to point out, how the power of one organ, compensating for the deficient function of another, not only involves no absurdity, but is consistent with fact. If this can be demonstrated, or even shewn to be probable, it is obvious that no small light may thus be thrown on some, at present, obscure parts of therapeutics. The relation of the different elements of the excretions to each other is really much more intimate than has been suspected; and our powers of modifying that great and

important function to which attention has been but lately drawn, the metamorphosis of our worn out and exhausted tissues; in other words, the phenomena of waste, may perhaps turn out to be more complete than we have ourselves anticipated. This destructive assimilation of our tissues, exercises an important, nay, we may even say, all-important influence on our well-being. Look at one person, who, instead of having his worn-out tissues resolved into the soluble elements of excretions, converts them into uric acid, and its presence in the blood and deposition in the joints becomes his bane and misery, in developing the tortures of gout. Or glance at another, whose old tissues are broken up into oxalate of ammonia, which in the presence of the calcareous salts of the urine, wears out the sufferer with the irritation of a mulberry calculus in his kidney. Others again hardly metamorphose their exhausted atoms at all, but with a lessened vitality arrest them in the glandular textures, developing the distresses of scrofula. These are but a few of the abnormal results of waste of tissues. If we can ever succeed in controlling this, it must be by directing the functions of the depurating organs.

[Dr. Bird proceeds to treat the subject under the following heads:—]

1. The influence of modifying causes in controlling organic metamorphoses.
2. The relation of the elements of the excretions to each other, with the view of demonstrating their probable compensating function.
3. The application of these views to the depuration of the blood in the treatment of disease.

[For full information upon these points we must refer the reader to the lectures themselves, as published in the Medical Gazette; contenting ourselves with extracting the following observations upon chemical forces. Dr. Bird says,]

One of the most marvellous circumstances observed in the chemistry of organic life, and one which, in the views of many, more especially demands our adhesion to the doctrine of a special vital force, is the formation of bodies apparently very different, in different parts of the organism, from one and the same pabulum—the blood. If, however, instead of throwing over this great fact the veil of obscurity which is always woven from the blind belief in occult causes, we reflect upon some well-recognized phenomena occurring in inorganic chemistry, we shall find ourselves in many instances either compelled to abandon this notion, or to invest dead matter with the same attribute. The power of selecting or attracting certain elements by the different secreting glands from the blood, will be found to be not a whit more mystic and unintelligible than the most frequent and recognized results occurring in the chemistry of inorganic matter.

The result of researches into the ultimate constitution of matter,

especially in relation to the electric and allied forces, has demonstrated the existence of certain polar attractive powers in the atoms of every form of matter. Hence the ultimate chemical molecules of bodies can hardly be regarded as inert and passive, but as really animated by forces often of remarkable intensity.

The chemical tendency of almost every body is capable of remarkable variation under different circumstances; but of all those we are acquainted with, there are none in which this tendency reaches so high a pitch as at the instant when chemical atoms are separated from each other. Hence, to give a body its utmost intensity of chemical tendency, we must combine it with another body, and present it to a third at the moment of separating the combinations first formed. Thus, let us suppose A and B are capable of uniting and forming a new and stable compound, yet it may happen that their chemical tendency is so slight that we may actually place them in contact without their combining, or presenting the slightest attractive force for each other. But if we take a compound of A with C, and place B in contact at the instant C is by some force separated from A, they will at once unite and form the new combination. Thus it is assumed that the chemical tendency or polarity of bodies is most active and intense at the moment of their separation. And we must not lose sight of the fact, that at the moment of this separation being effected, electricity is always evolved.

It is universally admitted that the material elements of our tissues are always in a state of change, that at each moment of our existence effete and exhausted tissues are in a state of metarmorphosis, the ultimate element separating under the disorganizing influence of inspired oxygen to forms the element of excretions. Thus, we have constantly in the wonderful laboratory of our frames ultimate atoms in a state of active chemical tendency, or, in other words, in a nascent state. If, then, when such atoms of carbon, hydrogen, nitrogen, and oxygen, (in a state of high chemical tension, at the instant they are set free from their previous union, when forming part of the structure of any organ,) come in contact with benzoic acid, they at once combine with it in the same proportion in which they exist in sugar of gelatine, and hippuric acid results. If any person swallows thirty or forty grains of benzoic acid, it will be absorbed with his blood, and in the capillaries will come in contact with the elements in question; hippuric acid will be generated, and, in accordance with the law of all soluble matters in the blood not required for the purpose of nutrition, filtering off by the kidneys, it will be found readily in the urine. The specimen which I now shew you was thus prepared from the urine of a patient to whom I had administered benzoic acid. This contains all the benzoic acid I gave him, plus carbon, hydrogen, nitrogen, and oxygen, in the proportion to form sugar of gelatine. It does not necessarily follow that these elements be always separated in the proportion to form glycocoll: if we throw into the system a body

which differs in its composition from it, in a ratio quite distinct from that of benzoic acid, still the nascent atoms will be seized to form hippuric acid.

The administration of the glycocoll, to which I have just drawn your attention, affords us another instance of this appropriation of the nascent atoms of exhausted tissues. This body may be taken in large doses, and yet not a trace will appear in the urine. It appears to circulate in the blood, and, coming in contact with the nascent molecules of carbon, nitrogen, and oxygen, in the proportion to form cyanic acid, uric acid is formed, which appears in the urine, for—

	C	H	N	O
1 Glycocoll.....	4	4	1	3
3 Cyanic acid.....	6		3	3
= 1 Uric acid	10	4	4	6

the large excess of uric acid which thus is removed from the blood being mixed with, or replaced by, urea, if sufficient oxygen be present.

I would for an instant occupy your attention by inquiring whether any explanation can be given to the fact of high polarity or chemical tendency possessed by nascent molecules. Can we, I would ask, from the facts to which I have alluded, draw any conclusion which will express a general condition for the development of the power in question? After much reflection on this matter I have convinced myself that a key to this mystery is easily to be found. I believe that bodies possess this high chemical tension when in a nascent state, not because of their being in a state of evolution or *nascence*, (if the term be permitted,) but because of, at that instant, their being of necessity in a state of ultimate molecular division. Whenever, then, and by whatever means, we can separate bodies into their ultimate constituent molecules, we shall always possess them endowed with their natural amount of chemical tendency. Throwing them into a nascent state is, then, so far important, from its presenting them to us in a molecular form for an instant; could we retain them in this molecular form, we should always have them in a state of chemical tendency. Of this we have an excellent illustration in the state in which metals are left when reduced at a low temperature. Thus, if the oxides of iron or cobalt are heated below ignition, and exposed to the influence of a current of hydrogen gas, the metal parts with its oxygen to the hydrogen at too low a temperature to allow the molecules as they are deoxidized to unite by fusion: accordingly, a metallic powder is left, actually made up of separate molecules. In closed tubes these will keep for years; but the instant they are exposed to the air, so high is the chemical tendency of the substance, that oxygen is absorbed with rapidity, the mass becoming red hot.

Medical Gazette, June 2, 1848, *p.* 929.

[Dr. Golding Bird then gives us an interesting account of the manner in which some of the secretions assist in the depuration of the blood; and although it would be more in accordance with the arrangement of articles in this volume to place his views on the chemistry of the urine, &c., in their proper situation, yet we think that this very interesting subject would be thereby disconnected; and therefore we will proceed in this place to state some of his views: first, with respect to depuration of the blood by means of *the liver*, he says,]

The biliary secretion is most correctly to be regarded as consisting of a compound of an organic electro-negative body with soda, a bilate of soda. In addition to this, a small quantity of cholesterine and fatty acids, with mucus and a colouring matter, or *biliphaein*, are present. The colouring matter is very small in quantity—just sufficient to give a yellow tint to the fresh secretion, although in disease it is often formed in very large quantity. It may be regarded as an important means of eliminating carbon from the body when the normal secreting functions of the liver are partially or wholly suspended. The composition of this pigment is, from the analysis of Professor Scherer—

Carbon . . .	98·182
Hydrogen . .	7·437
Nitrogen . .	7·047
Oxygen . . .	17·261

This body can be easily detected in fluids containing it, by the addition of nitric acid. This is best observed by pouring some of the fluid on a white surface, and then allowing a drop of the acid to fall on it. I now spread on the surface of this white card a thin layer of some urine containing this substance, passed by a patient with jaundice, and in whom the kidneys are acting as a liver in depurating the blood of carbon. On adding a drop of nitric acid, a beautiful iridescence or play of colours from green to pink immediately takes place. This effect is quite characteristic of biliary colouring matter.

Bile-pigment is unquestionably a result of metamorphosis of blood, probably of old blood corpuscles: it bears no small analogy to blood-pigment; and an Italian chemist, Polli, has lately suggested that they are producible from each other by processes of oxidation or reduction. He has drawn attention to the fact of blood and bile assuming an exactly opposite series of colours by exposure to the air. The play of colours in blood he noticed in the well-known varying tints of an ecchymosis, and the changes of colour in bile-pigment he watched by simply exposing it to the air. According to his observation, the following changes of colour were observed:—

Blood-pigment—Black, violet, blue, green, yellow.

Bile-pigment—Yellow, green, blue, violet, black.

On the table is a glass vessel containing a diluted solution of blood-pigment. I will now pass through it a current of sulphuretted hydrogen. In a few minutes its crimson hue is replaced by a darker hue, which, by reflected light, is olive green. Attention was long ago drawn to this fact by Gmelin, as an illustration of the relation existing between the pigments of bile and blood. Some years ago I noticed this result in a paper published in the Medical Gazette, in which I first pointed out the serious error of regarding the green fæculent discharges so often noticed in infancy as owing their colour to an excess of bile, tracing their tint to altered blood, and shewing that this condition should be regarded as a form of melæna, and the too popular treatment by mercurials repudiated.

Medical Gazette, June 16, 1848, *p.* 1022.

[But it is on the *chemistry of urine* that the remarks of Dr. Bird are more particularly interesting and applicable to the treatment of disease. On this subject he says:]

Remembering that the urine is most strictly an *excretion*, consisting of matters resulting from the metamorphoses of worn-out tissues or ill-formed blood from mal-assimilated food, unlike the bile, which plays an important part after its separation by the liver, I am particularly anxious to impress upon you the necessity of regarding the urine as made up of water, and the solids dissolved therein, and the necessity of there being a certain and definite amount of the latter excreted in a given time, however much the former element may vary in quantity. The quantity of solid constituents of the urine excreted in twenty-four hours may be fairly taken as an index of the amount of tissue or blood-elements metamorphosed in that time. Now we here encounter a capital error, almost invariably overlooked, when we are regarding the urine as the result of a depurative function. This error consists in contenting oneself with the examination of a specimen of the urine carelessly taken at any time of the day. Now although, when examining the urine with a view to the detection of abnormal ingredients, as albumen, blood, bile, or sugar, this is often sufficient; still this off-hand examination is utterly valueless in the cases we are about to consider. The only mode of gaining any information into the amount of work done by the kidneys in depurating the blood, is to collect the whole amount excreted in twenty-four hours, and then, from the analysis of an average sample, to determine the composition of the whole.

Notwithstanding the latitude which, as a necessary result of obvious causes, must be allowed to anything like an exact and definite statement regarding the quantity of matter excreted in a given time by the kidneys, we are able, from the results of a very large number of investigations, to arrive at a very close approximation to the truth. As an average, then, the following may be regarded as a correct view of the matters separated from the blood by the kidneys in the course of twenty-four hours in a healthy man. The whole being dissolved in about forty ounces of water:—

Urea	270 grs	
Uric acid	7·6 „	
Creatine, Creatinine	?	176
Uroxanthin	?	
Sulphur extractive	20 ? „	
Volatile saline combinations and indefinite organic matters		
Fixed salts	170 „	

Of these ingredients, our knowledge of the relation of the urea and uric acid is tolerably satisfactory. That they are both produced by the metamorphoses of nitrogenized elements of worn-out tissue or mal-assimilated food, is certain. Their quantity may, indeed, be assumed as a measure of the amount of the destructive assimilation of nitrogenized tissues or other matter in a given time. Urea contains 46.65 per cent. of nitrogen, and uric acid 33.36 per cent.; thus the average quantity of urea excreted in twenty-four hours would indicate the metamorphoses of about 800 grains of muscular tissue or blood, and the uric acid of about fifteen grains. Now if urea and uric acid perform a similar function—that of acting as the agents for excreting nitrogen—it may be asked, what relation do they bear to each other? The view rendered popular by the illustrious chemist to whom I have so often referred, is, that the nitrogenized matters are first metamorphosed into uric acid which by the continued action of oxygen and water conveyed in the arterial blood, is next converted into urea; for

		C	N	H	O
1 atom of uric acid		10	4	4	6
+4 „ water				4	4
+6 „ oxygen					6
		10	4	8	16
−6 „ carbonic acid		6			12
=2 „ urea		4	4	8	4

On this hypothesis, uric acid, absorbing water and oxygen, is split up into urea, which is separated by the kidneys, and carbonic acid, which is excreted by the skin or lungs. I must not allude to the objections which were urged against this view by myself and others; they are well known, and I believe, very generally admitted. It is at all times better to confess our ignorance than to give a plausible but unfounded explanation of any phenomenon. And I fear this confession must be made in relation to the question before us. We do not know why, under some forms of disease, and even in health in some constitutions, the waste of the body is peculiarly

prone to cause the nitrogenous matters to build up uric acid. How often has every one of us cause to lament this tendency—a tendency often inherited, as witnessed in those who suffer under the infliction of gouty progenitors. Some animals present this peculiarity in their waste or metamorphosis of tissue. The feline tribe, as a rule, produce nothing but urea; the serpents, nothing but uric acid. Both are carnivorous, and their differences of habits and temperature of their blood, have been called in to explain this difference. But this explanation fails; for in the vast tribe of birds and true insects living on every possible variety of food, having every imaginable variety of habit, each and all convert their nitrogenized elements into uric acid exclusively; whilst the spider tribe, from the researches of Dr. John Davy, appear to convert their worn-out structures into the curious body, uric oxide or xanthine. Again, we cannot in these animals convert uric acid into urea by any alteration of diet or habit. The idea lately promulgated of carbonized food inducing the production of urid acid by monopolising that oxygen which should be employed naturally by converting uric acid into urea, is negatived by the facts observed in herbivorous animals, which excrete a large quantity of a body rich in carbon, hippuric acid, and simultaneously separate an enormous quantity of urea: thus, in a cow fed on potatoes, 1000 grains of its urine of sp. gr. 1·040, contain 18.48 of urea, and 16·81 of hippurate of potass. And the urine of a horse contained in 1000 grains (sp. gr. 1·0373) 31 grains of urea and 4·80 of hippurate of potass. The pig is an animal peculiarly prone to lay up large stores of fat, and, therefore, on the views of Professor v. Liebig, laden with a body whose chief function is to appropriate oxygen, and yet in the urine of this most greasy animal, no uric acid was found, but urea existed to the amount of 4·9 grains in 1000. The analogous fact of diabetic persons excreting much uric acid, I have elsewhere noticed. We must be content at present with assuming that, whilst in man the nitrogenised matters are in health chiefly metamorphosed into urea, still that under certain states of the system, either induced by disease or acquired by inheritance, he imitates the birds, serpents, and insects, in converting them into uric acid, and even sometimes, although rarely, he resembles the spider in having these matters appearing metamorphosed into the uric or xanthic oxide.

We have a beautiful proof, if proof were wanted, of the depurative function performed by uric acid, when imperfectly assimilated nitrogenised food enters the blood, in some late experiments of Boussingault's, performed on ducks. This very careful and laborious observer first carefully examined the quantity of uric acid excreted from the metamorphosis of tissue of the animal, by ascertaining the quantity excreted in a given time by a duck deprived of food for some hours; in another who had been made to swallow balls of clay; and a third who had been fed on gum—a body nearly free from nitrogen. He then proceeded to ascertain the increase of the acid excreted after the ingestion of various articles of food.

I have arranged the following table from these experiments, having reduced their results to the same times; all the weights being calculated to English grains:—

Uric Acid excreted by ducks in 24 hours.

Food administered.	None.	Balls of Clay.	Gum.	Casein	Gelatine.	Gelatine.	Fibrin.	Flesh.
Quantity digested .	none.	none.	163 24	426·64	1490.8	1713·	635·2	956·34
Uric acid excreted.	4·163	4·163	4·412	162·4	157·08	203·28	138·6	291·0
Nitrogen in the food	none.	none.	?	66·54	271·1	311·76	99·82	149·136
Nitrogen in the uric acid	none.	none.	?	53·59	51·83	67·08	45·7	96·03

The tabular view of Boussingault's researches is peculiarly instructive, and places beyond all doubt the real office of uric acid, at least in those animals which normally excrete their nitrogenized elements in that form. Analogous experiments of Lehmann and others, have shewn that urea performs a similar function in man. The only difficulty investing the subject, is simply the question, why urea is sometimes the form in which nitrogen is evolved; but why at others, uric acid performs this fuuction. That the view of professor v. Liebig is untenable I have already expressed my opinion, and serious objections are opposed to the notion of uric acid being, in man at least, the result of the metamorphosis of one set of tissues, and urea of another, since that in ducks, in Boussingault's experiments, not a trace of urea was excreted, although carefully looked for, and yet structures physiologically identical with those of man, and of carnivorous animals, must have undergone metamorphosis. The true physiological relation of urea to uric acid is still one of the *desiderata* of science.

[The following table showing the relation between "the bile and urine in their respective depurative functions" is also taken from Dr. Bird's very interesting course of lectures:]

	Bile.	Urine.
Elements depurating the blood of Carbon—	Cholalic Acid. Dyslysin. Biliphaein.	Uroxanthin. Hippuric Acid. Purpurine. Biliphaein.
" " Sulphur—	Taurine.	Cystine? Sulphur-extract
" " Nitrogen—	Glycocoll.	Urea. Uric Acid.

Medical Gazette, June 30, 1848, *p.* 1106.

The physiological indications fulfilled by the urine are familiar to all: we know that the kidneys pump off from the blood all excess of water, that they remove the metamorphosed products of effete tissues or mal-assimilated food, chiefly, in the form of urea, creatine, creatinine, uric acid, hippuric acid, uroxanthin, and a peculiar body abounding in sulphur; but we also know that the researches of Wöhler have shewn something more, viz., that whatever substances exist dissolved in the blood, not necessary or fit for the repair of the structure of our frame, invariably escape from the body by the kidneys. The injection of saline bodies, colouring matter, &c., readily proves the truth of Wöhler's statement. These bodies, are, however, often excreted in a metamorphic state, and hence we must not expect to find them in the urine in the state they entered in the blood; thus benzoic acid, hydruret of salycyle, sulphuret of potassium, appear respectively as hippuric acid, salycylic acid, and sulphate of potass, in the urine; and the evidence I brought forward on such changes in my second lecture, is, I hope, not forgotten. On this account, if it be granted that in a given disease a man perfects in his own body a septic poison, as deadly, perhaps, as that of the puff-adder, and capable of producing as malignant effects, if introduced into the blood of a healthy person, —if such poison really exists, and be ultimately got rid of by the kidneys, it is by no means necessary to find the urine as poisonous as the blood, or other secretions of the patient; as the septic matter, or the results of the metamorphosis of tissues under its influence, will in all probability be resolved into some of the now well-recognised elements of the urine. Although, indeed, even this may occur, as shewn in the celebrated debauches of the Kamtschatdales —in the amanita muscaria. When this fungus (rare among them) is found, a party partake of it with the gusto with which the Highlander swallows his whiskey; and they become very drunk. Anxious, perhaps, to prolong their conviviality, no other amanita can be found—how are they to proceed? There is no difficulty, however, on this matter, for they have discovered that the intoxicating element escapes from the blood—which it had entered—by the kidneys; and thus a second day's debauch is economically kept up by quaffing their own urine, which is made to replace the more elegant, but scarcely less injurious, alcoholic stimulant of more favoured countries.

[Dr. Bird observes that if it can be shewn that sudden improvement occurs in a patient, concomitantly with an enormous increase in the amount of solids in the urine, the old doctrine of critical excretions from the kidneys will receive some support. In reference to the mode of detecting such a condition of the urine, Dr. Bird says,]

In a paper published in the Medical Gazette two years ago, I pointed out, for the first time, the importance of determining the amount of *real urine* passed by a patient. By this term, *real urine*, I understand the solid elements of the urine, as distinct from the water in which they are dissolved. Water, although

an important, is not an essential element of the urine: it may be excreted by other emunctories; but not so the matters dissolved therein: these seem, except in mere traces, to be only able to escape from the body at the outlet afforded by the kidneys, and indeed, from a structure of those glands distinct from that which pours out the water. In the paper alluded to, I pointed out the mode of determining this important question at the bed-side, and hinted at the results which would probably be obtained by it. From that moment I have never lost sight of the inquiry, and one among many of the results flowing from it I now shall bring forward.

[After remarking upon the importance of first ascertaining the quantity of urine secreted during the twenty-four hours, Dr. Bird proceeds to say:]

The characteristic function of the organs under consideration must undoubtedly be regarded as the excretion of highly nitrogenised matters derived either from the wear and tear of the animal tissues, or from imperfectly assimilated food. Therefore, to obtain a measure of the amount of integrity of this great depurating function, we must not only measure the urine, but calculate with tolerable accuracy the amount of solid matters really existing in it. This can, of course, be effected by the evaporation of a given quantity to as dry an extract as can be obtained. The practical difficulties attending this process are familiar to every one who has ever performed the task; and, moreover, the time required for its performance would preclude its being had recourse to sufficiently frequent to be of any real service. I have elsewhere noticed the objections to this mode, as well as the advantages presented by the more rapid and easy determination of the quantity of solids from the specific gravity of the urine.

Although ready to admit that this mode of calculating the quantity of solids is not susceptible of rigid accuracy, still, I maintain that the total error existing in a series of observations thus made will be far less than if actual evaporation of the urine was performed; and further, the large number of observations capable of being thus made by every one, amidst the fatigues of large practice, render it of infinitely greater value than a process which requires time and practical skill for its performance.

The following table presents us with a mode of recollecting the quantity of solids existing in urine of different specific gravities, when the table is not at hand for reference—a piece of short memory of no small service in practice. Thus if the specific gravity of any specimen of urine be expressed in four figures, the two last will indicate the quantity of solids in a fluid ounce of the urine, within an error of little more than a grain, when the density does not exceed 1·030; above that number the error is a little greater. To illustrate this, let us suppose we are called to a patient, the integrity of the depurating functions of whose kidneys we are anxious to learn. The quantity of the urine excreted in twenty-

four hours amounts, we will suppose, to three pints or sixty ounces, and the density of the mixed specimens passed in the time alluded to is 1·020; now we merely have to multiply the number of ounces of urine by the two last figures of the specific gravity, to learn the quantity of solids excreted; or 60×20=1200 grains of solids. If the table were at hand, the calculation would be more rigid, for we should then multiply 60 by 20.79, instead of 20; the product, 1247 grains, shows that by the former mode an error of 47 grains has been committed; an amount not sufficient to interfere materially with drawing our inductions by the bedside, and of course capable of immediate correction by referring to the table at our leisure.

Specific Gravity.	Weight of 1 fluid oz.	Solids in f℥j.—grs.	Specific Gravity.	Weight of 1 fluid oz.	Solids in f℥j.—grs.
1010	441·8	10·283	1025	448·4	26·119
1011	442·3	11·336	1026	448·8	27·188
1012	442·7	12·377	1027	449·3	28·265
1013	443·1	13·421	1028	449·7	29·338
1014	443·6	14·470	1029	450·1	30·413
1015	444·0	15·517	1030	450·6	31·496
1016	444·5	16·570	1031	451·0	32·575
1017	444·9	17·622	1032	451·5	33·663
1018	445·3	18·671	1033	451·9	35·746
1019	445·8	19·735	1034	452·3	35·831
1020	446·2	20·792	1035	452·8	36·925
1021	446·6	21·852	1036	453·2	38·014
1022	447·1	22·918	1037	453·6	39·104
1023	447·5	23·981	1038	454·1	40·206
1024	448·0	25·051	1039	454·5	41·300

From a large number of observations, it appears that the average amount of work performed by the kidneys in the adult, may be regarded as effecting the secretion of from 600 to 700 grains of solids in twenty-four hours. Although certain peculiarities connected with muscular exercise, regimen, and diet, as well as certain idiosyncrasies of the patient, may influence this, yet if we regard 650 as the average expression of the number of grains of effete matter excreted in twenty-four hours by the kidneys, we shall not commit any very serious error. In calculations of this kind much latitude must be allowed, and it ought at least to be assumed that the kidneys may excrete fifty grains more or less than the assumed average, without exceeding or falling short of their proper duty.

I have in this as well as in the preceding lectures repeatedly used the term *depuration of the blood*, and have referred to it as an expression of a great fact. Some few years ago it would have required

no little courage to have even used this term, for it would have been by many regarded as at least redolent of the sybils of the wash-tub, among whom and their congeners there is always an aptness for referring all diseases to the "blood being in a bad state," or simply "bad blood," as all who have had much to do with dispensary practice can amply testify. Yet so much favour has a modified humoralism gained in the sight of the reflective physician, that not only will such expressions pass current, but hosts of affections are now regarded as strictly blood diseases, or conditions of *cacoœmia*—another illustration of scarcely any popular opinion or prejudice existing without some admixture of truth. Admitting in general terms the fact that the kidneys do depurate the blood of from 600 to 700 grains of solid matter in the twenty-four hours, I am anxious to remind my readers that not only does this occur in accordance with fixed physiological laws, but that the proportion of solids excreted at particular parts of the day vary according to the amount of impure matters existing, and present in the blood. I will select but one among many illustrations which I have at hand for this purpose. In a person in good health, the bladder was completely emptied, and the urine afterwards secreted was collected the next day at 8 A.M., 12 and 5 P.M., and 11½ P.M., the total quantity voided being twenty-four ounces, but a very small quantity of fluid having been taken. The urine voided at 8 A.M. was evidently excreted from the blood independently of the influence of the blood, and may be regarded as a measure of the quantity required to be removed for the depuration of the blood of the effete matters entering it from the metamorphosis of tissue; that passed between 8 and 5½ contained the addition of imperfectly assimilated matter derived from breakfast; and that voided at 11½ contained the results of mal-assimilations of dinner. The table before you exhibits the result of the analyses of these specimens:—

When passed	8 A.M.	12 and 5 P.M.	11½ P.M.
Quantity	℥viij.	℥vj.	℥viij.
Sp. gr.	1·016	1·020	1·030
Uric acid	8 grains	2·4 grains	4·8 grains
Urea	50·9 „	41·16 „	88·2 „
Creatin, animal matter, and volatile salts	62·46 „	36·78 „	123 72 „
Fixed salts	18·4 „	44·4 „	35·2 „

We thus find that the blood alone yielded 114·16 grains in 8½ hours.
„ „ plus breakfast 80·34 „ in 9 „
„ „ dinner ..... 216·72 „ in 6½ „

In this example we have merely traced out the excretion of a definite amount of matter from the blood in health, and when the processes are as little as possible interfered with; this observation bearing, indeed, a close resemblance to the interesting experiments of Boussingault with ducks. We, however, will now pass to the

consideration of another illustration, in which the quantity of effete matter excreted is considerably increased from the leaven of disease. An illustration also of another fact, and a very important one, to which I have already alluded—that a direct ratio exists in certain diseases between the excretion of a definite portion of effete matter from the blood and the amelioration of the patient's condition, such excretion being pro tanto *critical*. I shall now merely refer to the amount of "real urine" excreted, without reference to its composition.

[For this purpose Dr. Bird relates two cases of ague, in which the amount of solids excreted in the urine was ascertained at regular intervals during the treatment. It was found that their amount increased in the ratio of the improvement of the patients.]

I hope that I shall not be misunderstood in the line of argument I have adopted. Although believing most completely that ague is primarily excited by the influence of a peculiar septic poison derived from marsh malaria, I do not for a moment assert that this particular poison is excreted in the urine during the recovery of the patient. It is very probable that there are many intermediate links in the chain of causation between the incubation of the poison, and the development of phenomena accompanying convalescence. The great effect of the malarious poison is in all probability essentially and primarily exerted upon the nervous system, especially on the organic or ganglionic structure, which preside so importantly over the function of secretion. Thus, all the secretions elaborated in the body become affected; and, as is well known, a remarkable tendency to congestion is observed in the portal circulation, destined most particularly for the depuration of matters rich in carbon. There can be no doubt that the unhealthy secretions thus formed, become active agents in keeping up in the body the impression of the disease. One of the great elements of successful treatment must of necessity be the depuration of the blood, and thus by freeing the system from the depressing influence of a vitiated pabulum for its growth and nourishment, allowing the vital powers to throw off the influence of the poison which for a time protected them. The influence of small doses of mercury in the treatment of ague is well known; by a gentle but persistent appeal of this kind to the liver, the patient is immensely relieved, and his ultimate cure expedited. Cotemporaneously with this, the aspect generally becomes less sallow, a sufficient indication of the liver becoming active in depurating the blood of carbon. Then, under the influence of that very curious class of remedies, the anti-periodic tonics, the paroxysms become less, or quite vanish, whilst ample evidence is afforded of the kidneys performing the important duty of filtering from the blood highly nitrogenised substances, by the rapidly increasing amount of solids existing in the urine.

Medical Gazette, July 28, 1848, *p.* 148.

[Having thus adduced evidence that sudden improvement has occurred in patients concomitantly with the evolution of a large quantity of solids by the kidneys, Dr. Bird proceeds to consider the question whether we can at will, by therapeutic agents, produce this depurating effect, and, by hastening the metamorphosis of matter, aid the removal of a *materies morbi*, whether itself the exciting cause, or the effect of antecedent morbid action. He says, speaking of the kidneys,]

Although the merest tyro in physiology is aware that the organs in question separate from the blood about one and a half ounces of solids in twenty-four hours, yet every one is not equally cognizant of the fact that the amount of excreta bears a direct ratio to the quantity of mal-assimilated matter in the blood, either derived from the food directly, or indirectly under the influence of the leaven of the disease, as shown in the results of the analyses of urine excreted at different times of the day, as well as in different phases of disease. Let us now endeavour to give a practical turn to this question, and ask whether *a therapeutical indication of importance may not be drawn from it?* And here we touch upon facts known and recognized by our predecessors centuries ago, but forgotten by ourselves. Having admitted that certain diseases are excited, kept up, or aggravated by a poison, if you will,—or in other words, by a noxious or lethal effete matter in the blood,—*can we not hope to aid our patient by exciting its removal by stimulating the depurating function of the kidneys?* This indication was acted upon by the old physicians.

[Dr. Bird considers that one of the most important elements in the treatment of the old physicians, was the *water* of the potions employed, and which was given *not by table-spoonfuls, but by pints.* He observes,]

It may be said that it is true that if a patient takes a pint or two extra of water he will, supposing that no organic lesion exists, excrete a large bulk of urine, from the necessity there exists for pumping off the excess of diluent partaken of. In this way a pint or two of water becomes a diuretic: this every one's experience will enable him to admit; but what is this, it may be asked, but the mere drawing off of excess of water,—where is the proof of blood-depuration? This proof is found by collecting the urine, measuring it, and by means of the formula and table before explained, calculating the amount of its solid constituents. It will then be found that the excess of water does not escape alone, but there is really washed away with it a certain, although not very large quantity of solid debris. To Edmund Becquerel must be accorded the credit of this observation; and any one may satisfy himself of its accuracy by collecting all the urine he passes in twenty-four hours, and determining the quantity of solids it contains; and repeating this process next day, while throwing into his system three or four bottles of aerated—the so-called soda—water. This observation

affords a key to many of the undoubted cures effected by the use of many of the mineral springs.

A man labouring under some chronic ailment, which, perhaps, like old rheumatism, is the direct result of unhealthy constituents of the blood, starts for one of the Brunnens or Spas, and with fearful devotion swallows the enormous quantity of ten or fourteen beakers of the warm and bubbling water. In a few minutes he begins to secrete abundance of urine, and is engaged alternately drinking and micturating for part of the morning,—active exercise, when possible, being enjoined the whole time. By this exercise the wear of tissue is increased, and the copious water-bibbing positively aids the metamorphosis of tissue, and washes its results from the body. An excellent and esteemed physician, the late Dr. J. Johnson, who paid great attention to this subject, informed me that he had been long accustomed to regard this active diuresis as an essential element in the patient's well-doing; and where it was not produced the patient was generally the worse for his visit. Hence he was in the habit of never sanctioning any of his patients making a pilgrimage to the Spas if any organic lesion existed capable of interfering with the function of the kidneys.

The same explanation may be given to the success which has attended some cases when submitted to the hydropathic quackery: the patient being actually cleaned out,—the old and diseased tissues being literally washed away, to make room for new structures deposited under the cheering results of the hygienic influences of exercise, good air, and change of scene; and the cheerfulness of mind produced by the bright promises of the future too often delusively held out by the disciples of Preissnitz.

When we are consulted by patients labouring under severe ailment, attended with dark urine, pale alvine dejections, and a jaundiced face,—who hesitates for a moment making an appeal to his liver, and bringing into full play his battery of cholagogues,—who, when consulted on a case in which the skin is hard and dry, the surface imperspirable, and as a result, perhaps, the mucous membrane congested, would demur to the practice of directing his attention to the deficient function, and of doing his best towards arousing the torpid duties of the skin?

Although all will admit the importance of an appeal to the functions of liver and skin, and are daily in the habit of stimulating these great filters when tardy in their offices, yet the depurating offices of the kidneys are forgotten. True, if a dropsical effusion accumulates,—if a patient is threatened with falling a victim to waters of his own forming, the renal pumps are always looked to, and they are set to work, or rather expected to obey, the influence of stimulants, when, perhaps, in many cases a more philosophical and enlarged view of the etiology of the disease would have suggested the propriety of leaving them alone. But the filtering off of water is, as I have said, but one, and really a subordinate function, of the kidneys—one which it shares in common with the cutaneous and mucous surfaces. If we are

all ready to admit that an appeal to the liver is important in separating matters rich in carbon, hydrogen, and sulphur from the blood,—are not the kidneys equally so in their special function of separating matters rich in nitrogen? But we must not forget that we are thus taking a very narrow view of the great importance of the depurative functions of these great glands, for I have shown you that one, namely the liver, separates from the blood the elements of glycocoll, a body representing the atomic composition of urea and sugar, the former in health, the latter in disease, being constituents of the urine. If we assume the computation as correct that an adult man secretes twenty ounces of bile in the twenty-four hours, this quantity will yield about 1000 grains of solids containing thirty-seven grains of nitrogen, representing, if half this quantity can be obtained as glycocoll, forty grains of urea, or about one-eighth of that secreted by the kidneys in the same time. The kidneys not only, too, you will recollect, separate nitrogenised, but a considerable quantity of carbonised matter, and hence perform a depurative function analogous to, although less effective than, that of the liver, so far as elimination of carbon and sulphur are concerned. Hence there is a still more important view to take of the kidneys, in their being able to compensate, to a most remarkable extent, for the deficient functions of other emunctories. This, indeed, is a duty these organs can perform readily, because I presume it is less in violation of their normal and definite functions than is the case with any other gland. Thus the liver excreting normally but thirty-seven grains of nitrogen, could hardly be expected to secern any considerable proportion of this matter from the blood, —not so the kidneys, for these organs, as we have learned, always excrete, besides the nitrogenised bodies, urea, uric acid, creatine and creatinine, a pigment (the uroxanthin), nearly as rich in carbon as the bile itself, to which it bears no small analogy, and a peculiar extractive allied to cystine, although not yet isolated, but containing much sulphur, and thus in another important point approaching the hepatic secreta. But, dismissing theory, look to bed-side observation: observe any case in which the hepatic functions are deficient, and we see the urine assuming a compensatory, although, of course, not quite a complementary function, from the kidneys depurating the blood of carbon in the form of an increased quantity of its peculiar pigments—a body containing fifty-nine per cent. of carbon, and as proof, the addition of a few drops of hydrochloric acid to the warmed fluid, develops a magnificent crimson or purple hue, instead of the pale lilac of healthy urine thus treated. Let, however, the liver remain inactive, no matter whether from disordered function or lesion of structure, still the industrious kidneys labour on, and the chamber-pot is now observed by the patient to present a delicate high-water mark of an exquisite lake-colour. Soon this matter increases, and deposits of varying shades of crimson and purple occur. What is this purple deposit? what its function and origin? It consists of the ordinary urate of ammonia, mixed with the body once suspected

to be murexid or purpurate of ammonia, but with which it has not the most remote analogy, save in colour. This *purpurine*, as I ventured to name it when I first suggested its then probable and now ascertained function, is, as I hinted to you last week, but a slightly metamorphic form of an element of the bile, and contains no less than sixty-three per cent. of carbon. Let, however, the disease assume another phase, let the excretion of bile by the liver become arrested, the varying shades of yellow of the surface attesting its presence in the blood: *then*, not by assuming any new function, but in accordance with the law announced by Wöhler, of removing all soluble noxious matters, the kidneys secern and excrete the matter in health proper to the liver, and the contents of the bladder become nearly as bilious as urinous. The picture I have sketched is a familiar one; and of every day occurrence as it is, can we not deduce from it a useful lesson, in learning, (and, what will be better) acting upon the important fact, *that the kidneys can depurate the blood, not only of matters generally regarded as proper to their function, but of substances which it is the normal duty of other emunctories to separate from the animal organism.*

Is it not wise, then, to take a more enlarged view of the class of alterative or resolvent remedies than we now do? We scarcely use one of this class, without intending it as more or less to influence the liver. Hence an alterative and mercurial are in common parlance nearly convertible terms. These powerful remedies, however, acting as they do in general on the capillary functions, are capable of influencing all the glands, and hence, however intended, and with whatever view prescribed, they often effect good by exerting a less special influence than was intended by the physician: and as I confess myself to be an utter sceptic to the generally received and popular notion of the *specific* action of mercury on the liver, this important and most ancipital remedy exerts a marvellous influence over that great laboratory of the system, the capillary circulation, and wherever the capillary structure most abounds, there its effects are most prominently developed. Mercury is then a stimulant to the function of the liver only inasmuch as this great organ contains an enormous mesh-work of capillaries: it influences equally in proportion to their bulk all the other organs in which this curious vascular structure exists. A dose of mercury, then, when administered, acts on all the organs in which capillaries abound, and the liver being one of these is influenced by it, but not more in proportion to their development than the kidneys or salivary glands. After what has been said, I think I need hardly point out the *therapeutic indication* I am anxious to advocate.

I would press upon the practitioner the importance of directing his attention to diuretics, not as merely helping the pumping off of water, but as *renal alteratives*—as remedies aiding the removal from the body of injurious matters. I am aware that this indication is often unintentionally fulfilled, whenever alkalies or salts of vegetable acids are given, but still at the present time these and

other analogous remedies are not administered with the confidence they deserve.

I am anxious to announce to you a new fact, one which bids fair to be of great importance in the treatment of disease, and one which I believe has never yet been announced, and which the examination of the urine secreted under the influence of remedies has led me to discover. It is, *that we possess remedies which when administered remarkably increase the metamorphosis of tissue, and enable us to produce at will the very depurative effects, which I have pointed out to you as resulting normally in the course of certain zymotic diseases.* In taking a practical view of the so-called diuretic agents, it will now become necessary to divide these into two classes: the one including those which simply increase the bulk of the urine; the other, those which act as *renal alteratives*, and aid the depuration of the blood.

To the former class belong all those agents which out of the body exert no chemical effect on animal matter, as all the vegetable diuretics—squill, copaiba, broom, juniper, guaiac, digitalis, &c. All these, in the absence of any opposing cause connected with mechanical obstructions to the free course of the circulation, will, it is well known, increase the discharge of fluid by the kidneys, and become often valuable agents in enabling us to successfully treat dropsical accumulations. Hitherto no distinction has been drawn between these agents and those which exert a chemical influence on organic matter: and hence two sets of agents exerting most different physiological effects were confounded. If the urine secreted under the influence of the diuretics I have enumerated, be examined, the quantity of solids will never be found to much exceed the normal quantity: nay, sometimes they will even be in smaller quantity than in health, in consequence of their in some instances acting as irritants to the kidneys, and by producing congestion, interfere with active secretion.

Remedies, then, which exert no chemical action on organic matter out of the body, appear to be incapable of augmenting the quantity of solids in the urine, and hence are only of use in increasing the elimination of water;—they may, and do act as renal hydragogues, but not as renal depurants.

We have next to notice those remedies among the reputed diuretics which exert the influence I have alluded to, and according to my own observation, increase the metamorphoses of tissue, and act as depurating agents: this class includes the alkalies, their carbonates and their salts, with such acids as in the animal economy are capable of being converted into carbonic acid, including the acetates, tartrates, citrates of soda and potass. These remedies all act alike, they all actively stimulate the excreting function of the kidneys, and increase the bulk of the urine: but they do more, they actually increase the metamorphoses of tissue by, in all probability, a direct chemical action on the elements of worn-out and exhausted tissues, or other matter in the capillary laboratory of the body. It is well known that alkalies and their carbonates

powerfully dissolve albumen out of the body, and even break it up into various secondary bodies: thus, digested with an alkali, albumen yields leucine, protid, and erythro-protid, bodies allied to gelatine, formic acid, and other compounds. In like manner casein is broken up into tyrocin, leucine, valerianic acid, and other elements. From some such changes occurring in the body, and in the living organism itself, we find the chemical diuretics easily effecting important changes. This I have repeatedly confirmed by absolute experiment. I will adduce but one, as it may be taken as an example of the rest. A young lady is now, and has been for some time under my care, labouring, among other things, under a condition of the orifice of the urethra which prevents her passing water without the aid of a catheter, so as to admit of a very accurate examination of the quantity secreted in twenty-four hours. This, when no medicine was administered, was thus collected and examined; and then three drachms of acetate of potass being administered in the course of twenty-four hours, the urine secreted in that time was collected and analysed. The results are shewn in this table—

	Without medicine	After ʒ iij. pot. acet.
Quantity of urine in twenty-four hours	fʒ xvj . .	fʒ xlvj.
Specific gravity of	1·025 . .	1·017
Solids in	416 grs. .	782 grs.
Uric acid	2·6	3·45
Urea.	130·5	202·40
Soluble salts	72·0	248·40
Insoluble salts	21·6	32·20
Organic matters not included in the above	189·3	295.50
	416	782

The results of these analyses shew that, after deducting the excess in the amount of soluble salts arising from the conversion of acetate of potass into carbonate, the solids of the urine excreted under the influence of the chemical diuretic exceed those recovered without its aid by 190 grains; and we further learn, that although a large proportion of matter was metamorphosed into both uric acid and urea when the remedy was given, still that the greatest increase was in that mixture of organic products set down as extractive, and consisting chiefly of creatine, creatinine, uroxanthin, and matter rich in sulphur. In the example adduced, not only did the patient lose an excess of thirty ounces of water in twenty-four hours, but she *wasted* to the extent of one hundred and ninety grains more than if no remedy had been given, and to this extent had the blood been depurated of those elements which yielded easiest to the influence of alkaline salt. In these lectures I have advanced much which tends to limit the influence of the vital force, and have endeavoured to shew that it is not the active agent in controlling

metamorphic changes; but let me not be supposed for a moment to deny its influence. I regard life as an active agent in controlling organization, and in exerting an influence opposed to chemical or destructive changes—in a word, as a *conservative agent*. Now, admitting that the elements of our frames resist chemical influence in the ratio of their vitality, it would follow that such constituents of our fibres as present the greatest departure from health are less highly vitalized, and thus yield the easiest to the chemical force exerted by the alkaline diuretics. On this account it is fair to presume that, when we cause an alkaline carbonate to circulate through the blood, it exerts an influence on the nascent elements of those matters less highly influenced by life, allied to that which they exert on dead matter, aids their resolution into substances allied to those produced out of the body, and actually causes the matter to assume so soluble a form as to allow of its ready excretion. This remarkable effect of the alkaline diuretics, although now for the first time demonstrated by actual experiment, and the results of their chemical influence detected in the stream by which they are washed from the body, was not overlooked by the observing physicians of other days.

I would earnestly beg those who are now doing me the honour of listening to my remarks, to give a careful and steady trial to the *depurating or chemical diuretics*, especially the salts of potass with vegetable acids, when they are called upon to treat a chronic affection in which the exciting cause or existing disease, depends upon the presence of some product of less vitality or imperfect organization. I fully believe that in many instances such matters will be often found to yield, whether they present themselves as albuminous deposits in glands, furuncular disease of cellular tissue, or incrustations on the skin, as in some of the squamous and tubercular cutaneous diseases. That they will succeed in increasing the waste of matter, is, from my observation, beyond all doubt; that the lowest vitalized matters will yield to the solvent the readiest is most probable, and that an important and powerful addition to our supply of therapeutic weapons is certain.

I will not dare to do more than state that it has occurred to me to see the periodicity of ague broken through, the paroxysms lessened and made more distant, and the sallow dirty aspect of malaria exchanged for the cleaner and brighter complexion of returning health, under the influence of the agents I am advocating. The disease has thus been rendered readily amenable to the subsequent administration of the anti-periodic whose previous influence it had resisted, or, at least, not satisfactorily obeyed. Jaundice, connected with a large sluggish congested liver, has certainly better yielded to setting up a complementary function on the part of the kidneys by a diuretic alterant, than by goading the liver with remedies whose influence it refused to obey; and in more than a single instance a strumously enlarged cervical gland has yielded to the persistent use of an analogous remedy even after resisting the iodide of potassium.

In corroboration, to some extent, of the views I have announced,

I would particularly draw attention to the extraordinary discovery made by Dr. Letheby, and announced by him last year at the Royal Medico-Chirurgical Society. This gentleman discovered that arsenious acid, when administered to an animal, ceased, under the influence of an active diuretic to develope its poisonous effects, being rapidly carried off by the kidneys. The high and deserved reputation of Dr. Letheby invests this most unexpected and remarkable observation with authority, and, if corroborated by the experience of others, it must be regarded as one of the most marvellous facts connected with therapeutical inquiries.

I would impress upon those who will now act on my suggestion of employing alkaline acetates, tartrates, or citrates, as remedies for the depuration of the blood, or for aiding the solution of lowly organised or cacoplastic deposits, the necessity of testing the work done by the kidneys, by collecting the urine of twenty-four hours several times during the treatment; and then, by aid of the specific gravity, and the table I have given, the amount of excreted solids indicating so much metamorphosis of matter may be observed.

I have not alluded to the influence of benzoic and cinnamic acids as depurating remedies, because I have in an early lecture alluded to their mode of action. I may remark, however, that their efficacy is by no means limited to the quantity of carbon, hydrogen, nitrogen, and oxygen, they separate in the form of hippuric acid, as first pointed out by Mr. Ure, but I find that they induce an increased metamorphosis of tissue, and the quantity of matters included under the vague term of extractive, remarkably increases during the administration of benzoic acid.

I may now be permitted to express the statements I advanced in this lecture in the form of five propositions:—

A. That a knowledge of the amount of solids escaping from the body in the urine will, independently even of their chemical composition, often enables us to detect a deficient function of the kidneys, although the bulk of the secretion may not be materially affected. This can only be ascertained by the plan now proposed.

B That whilst *specific diuretics*, as a rule, only increase the exhalation of water from the renal capillaries, the alkaline salts, *(chemical or alterative diuretics.)* on the other hand, when coming in contact, in the capillary circulation, with the nascent elements of tissues or parts of low vitality, remarkably accelerate their metamorphosis and subsequent solution in the blood.

C. That in certain diseases attended by cacoplastic or even saline deposits, before despairing of all aid from medicines, it would be well to try to effect their removal by the agents in question.

D That in the treatment of disease, the question ought often to be entertained whether ailment is not excited, kept up, or aggravated, by an unhealthy condition of the blood, either by the actual existence of a *materies morbi*, or the presence of the results of mal-assimilation.

E. That when one or other indications be made out, great benefit may be often derived by aiding the metamorphosis and solution

of the morbid elements by the chemical diuretics (B), not administered with the view of separating mere water, but of aiding the excretion of solid elements of the urine.

Medical Gazette, Aug. 11, 1848, *p.* 227.

[On this very interesting subject of "the depuration of the blood," we append some valuable remarks from a review of Dr. Williams' "Principles of Medicine" in the British and Foreign Medico-Chirurgical Review. The writer says:]

It has been too much the custom to regard the fæcal evacuations as little else than the indigestible residue of the food, mingled with portions of the biliary and pancreatic secretions; whereas we think that a little consideration serves to show that the peculiarly *fæcal* matter is a real excretion, which must have been eliminated from the blood by the glandulæ of the intestinal walls. The undigested residue of the food may form a greater or smaller proportion of the *bulk* of the evacuation, according to the nature of the ingesta and the completeness of the digestive process. When the alimentary canal is in an irritable state, and the aliment is hurried through it without time being allowed for the proper action of the gastric and other secretions, a considerable part of it may be recovered from the fæces in almost unchanged condition. It is well known that the coats of seeds and the skins of fruits resist the gastric solvent; so that, if they have not been mechanically ruptured, their contents will pass out unchanged, the seeds not being in the least the worse as regards germinating power for having passed through the intestinal tube. It has been found that even starch-vesicles, if not ruptured by the masticating process, or by the heat employed (by cooking-animals) in preparing the food, resist the digestive process so completely, as not to give up their contents, being readily detectible by the microscope in the fæces. Further, there is no evidence whatever, that the undigested residue of the food *could* acquire the fæcal character during the short period which suffices in the state of health for its transmission along the alimentary canal; and there is every reason to believe the contrary; since the substances which resist the action of the gastric solvent are precisely those which have least tendency to this kind of decomposition. Moreover, in purely carnivorous animals, and in man, when he adopts the same diet, the food is *completely* soluble, and there is consequently no indigestible residue; yet fæces are still voided, though in smaller quantity than in herbivora. The case is still stronger in regard to sucking animals. The continued evacuation of fæcal matter, when little or no food is taken in, the large quantity brought off by purgative medicines after the bowels have been completely emptied of their solid contents, and the colliquative diarrhœa which so frequently occurs at the close of exhausting diseases, are so many obvious confirmations of the same view. To many of our readers it will doubtless be familiar; yet we are disposed to think that the idea of the intestinal glandulæ as performing a most important part

in the depuration of the blood, by eliminating from it the *putrescent* results of the decomposition of the solids and fluids of the body, is not generally entertained with sufficient definiteness. Dr. Williams has recognised the importance of some of the phenomena in question, and has put what we believe to be the true interpretation upon them. We find the following note in reference to the follicular enteritis of typhus in a later part of his volume:

"I have observed an extraordinary development and inflammation of the isolated and grouped glands of the intestines in the bodies of persons poisoned with arsenic. Their enlargement in epidemic cholera, and in the severe form of sporadic cholera, diarrhœa, and dysentery, caused by putrid effluvia, is well known. Are these glands excretory organs for the elimination of poisonous or noxious matters from the system? And in typhus fever, do they become inflamed and ulcerated by the continued operation of the poison in the exercise of this function? The favorable influence of moderate diarrhœa in fever, the uncommon fetor of the stools, the general relation between the duration of the fever and the affection of these follicles, the salutary operation of mild mercurial remedies which promote their secretion, and other facts that might be adduced, give so much countenance to this question as to make it worthy of attention."

"The preceding surmise, put forth in the first edition of this work, has received corroboration from numerous facts which I have subsequently observed; and it seems to me to indicate the true cause of the intestinal complication in fevers and other diseases induced by a morbid poison in the system."

The doctrine that the proper *fæcal* matter is not derived from the food, but is an excretion from the blood, has been recently advanced as new by Professor Liebig; but, strangely enough, he found himself at a loss for a glandular apparatus which he could regard as the special instrument of the function. He has added, however, one new fact of much interest; which indicates that the substance to which the fæces owe their peculiar fetor is due to the imperfect oxidation of albuminous compounds.

"If," he says, "we heat in a retort one part of white of egg and three of hydrate of potass, so as to melt the mixture, and continue the heat till the disengagement of ammonia has nearly ceased, and if we then supersaturate slightly the contents of the retort, after cooling, with dilute sulphuric acid, and distil, we obtain, along with a disengagement of carbonic acid and sulphuretted hydrogen, a liquid which is slightly acid, from the presence of acetic and butyric acids, and which has the most horrible fæcal smell. The substance to which the smell belongs is soluble in water and alcohol; it combines with alkalies, without, however, neutraling them. When exposed to the air, it is rapidly changed. By means of caseine, gelatine, and fibrine, when treated in the same way, we can procure all the different varieties of fæcal odour."

We look upon this question as one of great importance; since on the view we take of it much of our practice will depend. If it be

true that the intestinal surface contains an extensive glandular apparatus, whose special function is the elimination of certain products of decomposition from the blood, the facility with which we can stimulate this to increased action, by certain kinds of purgative medicine, gives us a most valuable means of augmenting the depurative operation. We are no friends to the indiscriminate use of purgatives, which is the vice of many practitioners who pride themselves on their active treatment; but, on the other hand, we cannot regard them with the horror which some entertain. Seeing, as we think that no observant practitioner can avoid doing, how frequently Nature herself employs this means of eliminating morbific matter from the system,—as is shown by the immense relief often given by a spontaneous attack of diarrhœa,—we look upon this apparatus as one which, like the liver, the kidney, or the skin, may frequently with propriety be stimulated by medicines which have a special action upon it, and one through which many morbific matters may be eliminated more certainly and speedily than through any other channel.

British and Foreign Medico-Chirurgical Review, July, 1848, *p.* 136.

DISEASES OF THE NERVOUS SYSTEM.

16.—ON THE TYPES OF DISEASES OF THE SPINAL SYSTEM PRESENTED BY EXPERIMENTS.

By Dr. Marshall Hall, F.R.S., &c.

One of the great advantages of experimental researches in *the spinal system* is, that they frequently present TYPES of its diseases; and the great advantage of these is, that they present the opportunity for the investigation of the nature of those diseases, and the deduction of their remedies.

The diseases of the spinal system exist under several forms which admit generally of being reproduced in experiments for the purpose, and with the objects to which I have just adverted.

In general the diseases of the spinal system occur under the form of *spasm*, of *paralysis*, or of the two combined—viz., *spasmo-paralysis*. They are all primarily affections of the excito-motor *muscular* system, to the exclusion of the *sentient* or cerebral system—a singular confirmation of a physiological doctrine, that these two systems are totally distinct from each other.

Generally spasm consists in *irritation* of nervous tissue, still retaining its normal structure, whilst paralysis implies a *lesion* of that structure. But the structure of the nervous tissue must be viewed under several aspects: thus this tissue may be injured by being lacerated or bruised at any given point; but it may be strangely injured in a given point by injury inflicted at a distance,

through the means of *shock*. In this manner spasm is apt to lead to paralysis, and for the obvious reason, that this peculiar lesion is of the most intimate or atomic character, unlike the division or separation of its atoms by laceration, &c., the paralysis, or spasmo-paralysis, so induced, is less persistent than in the latter case.

This remark leads me to the subject of the excito-motor power itself, on which all the movements connected with the spinal system depend. This power may be diminished or even suspended in its energies, it may also be greatly augmented, in which case there is proportionate augmented *susceptibility* to impressions, and to excited actions, the results of those impressions.

The former state of things is induced by all agents of such violent character as to induce shock; the latter is induced by peculiar agents, of a chemical or physical character, which act more gently on the nervous structures. The same identical agent may produce either of these effects, indeed, according to its degree. Thus too large a dose of strychnine speedily destroys all excitability; a very minute dose, on the contrary, induces the most extraordinary phenomena of augmented excitability which we can witness. The action of the electric current is precisely similar: a very mild current produces purely physiological effects; too strong a current soon induces destruction of the excitability of this part of the nervous system. The first effect of decapitation (of shock) in a frog, is suspension of the excito-motor power; the second and ulterior effect is, or is supposed to be, an augmented susceptibility and activity of this vital agent. Electricity, heat, and the class of agents, called stimuli, generally—may be employed so as to act as augmentive or destructive of the excito-motor nervous power.

As an example of these effects, I may mention, for the benefit of those who have not performed an experiment, that immediately after decapitation of the frog, no reflex actions are produced on irritating the foot; it is diminished excitability, the effect of shock. On administering a minute dose of strychnine, on the contrary, the touch, even of a feather, induces reflex action of a tetanic force and character.

From *experiments* we learn that this augmented susceptibility or excitability may exist in *force* without existing in *action*. A frog may be under the influence of strychnine, yet, if not actually *excited*, it may remain quiescent, relaxed in posture: it is tetan*ode*, without being tetanic, affording a *type* und idea of certain diseases of the spinal system, of the deepest interest—one on which the *rationale* of the symptoms, and the adaptation of remedies, alike and equally depend.

Now, in this point of view, the effect of strychnine on the frog presents the TYPE of hydrophobia. In both the *blood* is poisoned,—in both the spinal system is in a condition of extremely augmented *excitability*, without being necessarily *excited*. Avoid all excitation, and the frog recovers. Apply excitation of the mildest character continuously, and the frog speedily dies. Here an experiment accurately presents, not only the *type* of the malady, but of the treatment.

In this experiment, as in hydrophobia itself, we have two conditions—one of *excitability*, the other of *actual excitement*, according as excitation is averted or admitted.

I propose to designate the former condition by the termination *ode*, the latter by that of *ic*. The frog, unexcited, is still tetan*ode;* excited, it becomes tetan*ic*. The patient affected with hydrophobia is hydrophob*ode;* is he necessarily hydrophob*ic?* The former state admits of recovery; the latter soon destroys.

In this point of view we may consider other diseases of the spinal system. The patient affected with tetanus is not necessarily tetan*ic;* he is only tetan*ode*. If excited, he dies. What if he were, or could be, preserved absolutely from all excitement? He dies of violent and exhausting spasms. These spasms are *reflex* actions; reflex actions are necessarily *excited*. Remove all excitation, and the spasms—that is, the cause of death—would be averted.

In like manner the newly-decapitated snake is *full* of excitor and motor power, yet free from movement, unless an excitant be applied.

So also of certain forms of convulsive disease in infants and in adults. The patients are spasmat*ode*, or spasmatic, according as they are excited or preserved from excitement.

The difference throughout is that of the *disposition* to, or actual *condition* of, spasmodic action, or that of *excitability* and *excitement*. The former may subside; the latter destroys!

The further difference between hydrophobia and tetanus is, that the former is induced through the medium of the blood; the latter through that of an incident nerve. Of the former the frog affected with strychnine presents the exact TYPE; of the latter I doubt whether we possess an EXACT type in any experiment.

No experiment has been devised, to my knowledge, to induce augmented excitability of the spinal system through the medium of an incident nerve or nerves, or of any part of the spinal system. It is said that the decapitated batrachian is more excitable than the entire animal. But I think this a mistake. The effects of excitation are controlled by efforts of volition in the perfect animal, and uncontrolled in the decapitated animal. The difference is rather apparent than real.

Thus of traumatic tetanus, I believe I may affirm that we have not yet an experimental type. This is to be regretted the more because many questions arise which can only be speedily determined by means of experiment. For example, do the spasms perfectly relax during the course of the disease? The trismus seems persistent—is it so? Or does it cease and return on any excitement from volition, emotion, or excitation of reflex action? Does an act of volition, exclusive of emotion and of reflex action, pass into spasm? As in the stammerer, the attempt to speak passes into excited action; so in trismus, the attempt to open the mouth closes the jaws more firmly. Volition passes into excited action.

I fear that in extreme cases the acts of respiration and of deglutition may pass into general spasm; so that to avoid *all* morbid

action and its consequences may be impossible. Still the *type* of the disease in its augmented excitability, and the *principle* to guide us in the treatment—that of avoiding all excitation—are set before us in an experiment; and though the spasm *may* never cease absolutely, it will not be the less essential to avoid all causes of its exasperation.

It is to be observed, too, that in *all* experiments on the batrachian tribes, it is only types and principles which are presented to us, and on which our office is to reason correctly, and perhaps to experiment in our turn. It was an experiment on the *frog* which suggested to me the only *hopeful* way of treating *hydrophobia* and *tetanus!*

In dentition there is a state of augmented excitability and actual excitement, arising, as in tetanus, from injury done to a nerve. I have not, as I have already said, seen augmented excitability in any experiment consisting of injury inflicted on nervous tissue.

I now come to a new series of *types* of disease of the spinal system. They consist in actual excitement of its different parts, the incident nerves, the spinal centre, and the muscular nerves, portrayed in a series of experiments on electrogenic states of these living tissues, laid before the Royal Society, but not understood by those who pretended to judge them there.

The electrogenic state is that induced in a nervous structure by the continuous passage of a current of galvanism, of a force in due physiological relation to the excitability of the animal. Its phenomena are observed on withdrawing this agency.

The effect of this electrogenic state on the incident nerves is seen in varied reflex actions. The experiment is a *type* of those convulsive maladies which consist in excited reflex actions, such as are seen in dental, gastric, intestinal, and uterine irritation.

The electrogenic condition of the spinal marrow itself is the *type* of the class of certain convulsive affections which arise from arachnitis at the base of the brain, spinal arachnitis, &c.

Lastly, the electrogenic condition of the muscular nerves is the *type* of those cases of spasmodic affection arising from neuritis, or of inflammation of the neurilemma. Such a state of things exists in the second or convalescent stage of facial paralysis. The tumefaction of the neurilemma having subsided, the neurine is irritated instead of being compressed, and spasm is the consequence. In the experiment of the electrogenic condition of a muscular nerve, the frequent discharge of the electrogenic state produces a similar effect on the nervi-muscular fibre.

There is still another class of TYPES of diseases of the nervous system displayed in our experiments. The cerebrum and cerebellum being removed in a dog, extraordinary reflex actions are induced by irritating the dura mater at various points.

Having removed the head and sternum in a turtle, various reflex movements are produced by tearing away the viscera.

It is obvious that irritation of the internal membranes and tissues may thus be a source of reflex convulsive maladies; that of

the cerebral membranes induces various convulsive or tetanoid affections; so does irritation of the serous membranes within the thorax and abdomen,—especially that of the pericardium.

It is but a step from these affections to those dependent on dorsal, gastric, intestinal, and uterine irritation, with which we are so familiar.

It is but a step further to consider the remarkable effects occasionally attendant on passing a bougie or catheter, on irritating the meatus externus of the ear, on the passing of a biliary or renal calculus, &c. One patient experiences a sort of rigor, and an irrepressible deep inspiration on voiding the bladder, when that act has been too long delayed. Experiments might imitate some of these morbid phenomena.

I will conclude these observations by adverting to a question full of the deepest interest. A certain class of intracranial diseases—seated, I believe, at the base, and adjacent to the medulla oblongata—is attended with protracted sickness and vomiting; tetanoid, or epileptoid spasm; perhaps priapism and sexual excitement. What is the *precise* part, or organ, irritated in such cases? Experiment alone can teach us. I propose to place animals—dogs, for example—under the influence of chloroform, and to perform a series of experiments, to determine these and other important questions, replete as they would be with diagnostic, and, consequently, with practical suggestions.

It is in this manner only that *irritation* of the cerebrum, of the cerebellum, of the medulla oblongata, of certain nerves within the cranium, as the nerves of special sense, the trifacial, the facial, &c., the several membranes and their subdivisions, can be accurately and distinctly ascertained. When so ascertained, their application, as *types*, to the diagnosis of diseases, will be as obvious as it is important.

One such experiment I performed long ago. My aversion to the infliction of pain prevented me from ever repeating it, valuable as its results appeared, The discovery of the anæsthetic effects of ether, or of chloroform, will shed a benefit upon experimental physiology.

There is another experiment of great interest. In endeavouring to procure the circulation in the web of the frog independently of the spinal marrow, I always found that the most careful destruction of the medulla oblongata was attended by its annihilation. This organ exerts, therefore, extreme influence on the action of the heart. It is on this account that a state of pallor, so like that of syncope, occurs in many attacks of the apoplectic and epileptic character, in sea-sickness, in other forms of sickness, &c.,

All this is a part of scientific medicine and surgery. I believe it was an early career of experiment which made our greatest surgeon what he is. He sees symptoms by the light of physiology, and understands them! How apt and how beautiful, and how peculiarly his own, were his illustrations of surgical disease, on all occasions, from the chair of the Royal Medical and Chirurgical Society! *Lancet, Aug.* 19, 1848, *p.* 204.

17.—OBSERVATIONS ON PARALYSIS.

By Dr. R. B. Todd, F.R.S, Physician to King's College Hospital, &c.

[Dr. Todd relates the history of a case of paralysis arising from disease of the brain, and states that the points upon which the diagnosis was grounded, were the existence of pain in the head, the occurrence of paralysis on the opposite side to the pain, the irregular movements of the eyeballs, and double vision. He proceeds to say:]

The existence of fixed pain in the head in general indicates intra-cranial irritation. Pain in the head may be situate in the course of some of the nerves of the scalp, over the brow, or across the forehead, or in the temple, or spreading upon the parietal bone, or at the vertex. Pain in these situations is apt to shift, or intermit, or sometimes it gives the sensation of a nail being driven into the head—*the clavus hystericus*. When pain exhibits such characters as these, it is not indicative of any mischief going on within the skull, but rather is symptomatic of deranged digestion, or of some constitutional disturbance, or of a hysterical or hypochondriac state, or it is the result of debility or exhaustion; but where the pain is fixed in its situation, as in this case, and varies only in intensity, and not in locality, it can only be referred to intra-cranial irritation, such as probably would arise from disease of the membranes, or of some superficial parts of the brain. Disease of the corpus striatum, or of the optic thalamus, does not generally produce pain which is distinctly referrible to a particular spot. When disease of these parts occurs, it either causes no pain at all, or a dull heavy pain, which the patient cannot localise; unless, indeed, the pia mater in connection with them be extensively diseased. If the dura mater, or the arachnoid, or the pia mater, become the seat of disease, then pain is produced, and the patient refers it to a point which very nearly corresponds to the site of the morbid lesion: hence such pain as our patient suffers may be looked upon as indicating rather a superficial than a deep-seated lesion.

Another important symptom under which this man laboured was dimness of vision, which also assumed the form of double vision. This symptom, although it often occurs independently of cerebral lesion, ought, nevertheless, to excite the suspicion of such lesion, and more especially if there be at the same time any affection of the muscles of the eyeball.

The paralysis in this case is of that kind which generally depends on cerebral lesion, its one-sided character denoting a cerebral rather than a spinal origin: at the same time you must bear in mind, that a similar form of paralysis may take place, as the result of hysteria, where there is no appreciable lesion at all. In this case it is plain that the paralysis is not of the hysterical kind, because the face is affected, and also because the mode of moving the leg is essentially different from that of the hysterical palsy; the patient is also of the male sex, which is very much less liable to these hysterical affections.

The parts of the brain, the lesion of which is most apt to produce hemiplegia, are the corpus striatum and the optic thalamus, and the most frequent lesions of them are softening, a clot, or abscess. It is remarkable that lesion of the optic thalamus should produce nearly, or precisely, the same effects as lesion of the corpus striatum. This is probably explained by the intimate union of the two bodies so that neither can be affected without the other participating in the morbid influence; but if the optic thalamus be the part diseased, the corpus striatum will suffer more in consequence than the optic thalamus would if the corpus striatum were the seat of lesion, because of the great size and extensive connections of the optic thalamus, and the smaller size and more limited connections of the corpus striatum. Disease also in the immediate vicinity of these parts will cause paralysis; but if the lesion be situated quite near the surface of either hemisphere of the brain, and be not of such a nature as to produce pressure, there will be no paralysis.

A clot, or an abscess, or a tumor, in the centre of the centrum ovale, will not produce paralysis if it do not cause pressure, or interfere materially with any of the fibres of the corpus striatum.

Another condition capable of producing hemiplegia is inflammatory or other disease of the membranes. The dura mater cannot suffer long from inflammatory disease without implicating the arachnoid or pia mater. When you get inflammation of these membranes, you have effusion of lymph or of pus, which, as it increases, causes pressure on the surface of the brain, which is then extended to the corpus striatum and optic thalamus, and thence results the paralysis.

If some of the deeper-seated parts, such as the crura cerebri, are affected, we also have paralysis; because the crura cerebri, as the bond of union between the corpora striata and spinal cord, form a part of the great centre of volition. Disease of the cerebellum or its crura, provided it be deep-seated, will also produce hemiplegia; this is probably due to the connection which is formed between the hemispheres of the cerebellum and the fibres of the pyramids in the pons Varolii.

You will meet, in practice, four different conditions of the muscles in paralytic limbs in different cases. The first differs scarcely at all from that of the healthy muscles; the muscles exhibit, perhaps, less firmness, and are less excitable by the galvanic stimulus, when the paralysing lesion is not of an irritative kind. A second condition presents complete relaxation of the muscles: they are soft, imperfectly nourished, and waste with wonderful rapidity; so that under a paralysis of a few days' duration the size of the limb experiences a very marked diminution. In these muscles there is very little excitability to the galvanic stimulus—sometimes almost none. This is the most complete condition of paralysis, in the strict sense of that term, and it is sometimes accompanied with phenomena which denote a depressed state of the general nutrition of the limb: the pulse in the large arteries of that side is weaker;

there is sometimes more or less of œdema, especially if the limb be kept in a dependent position; and the heat of the limb is imperfectly maintained. Some of these cases get well; others continue paralysed, although the general health of the patient improves, and the muscles become wasted to mere membranes; others, again, continue paralysed, but the muscles gradually assume a condition, the third condition to which I wish to call your attention—one of contraction and rigidity, the flexor muscles always exhibiting this state to a greater degree than the extensors. The muscles are still wasted, but they are stretched like tense cords between their origins and insertions. The biceps in the arm, and the hamstring muscles in the thigh, project beneath the skin like tense membranes. This condition is due to a chronic shortening of the muscles themselves: they are tense, but not firm nor plump; it is undoubtedly a form of muscular atrophy, and is accompanied with feebleness of circulation and coldness of the limb. A fourth condition is illustrated by our present case. The muscles suffer very little, or not at all, in their nutrition; the paralysis is seldom complete; and the muscles are either constantly firm and rigid, or become so on the slightest movement of the limb. In these cases there is more or less of an exaltation of nutrition,—the circulation in the limb is vigorous, and its heat is not below the standard of the other limb; and it is frequently more excitable by galvanism than the corresponding muscles on the other side.

I must beg particular attention to these various states in which the muscles of paralytic limbs are found. You may draw practical inferences from them of great value in treatment: when the early condition of rigidity is present your patient will bear local bleeding or local counter-irritation, or both, with advantage; and will derive benefit from them, provided other symptoms do not contraindicate them. The state of complete relaxation affords no indication for the use of antiphlogistic measures, but on the contrary, in many of the cases in which it occurs it should be regarded as affording a contrary indication. As to that condition in which the muscles assume the contracted state gradually, and some time after the paralytic seizure, I wish much it were in my power to suggest some means of arresting it. Some slight benefit is gained by subjecting the limb to frequent extension at stated periods in the day: this I believe will retard the contraction, so long as it is diligently persisted in; but when it has been laid aside the contraction will go on just as if the extension had never been employed. The case is analogous to that of stricture in the urethra, or the cicatrix after a burn, which exhibit a remarkable tendency to contract, requiring in the former case the long-continued use of the bougie, and in many instances its frequent employment throughout the entire life of the patient. In both instances, indeed, I believe I am correct in saying that surgeons have hitherto failed in finding any means to check effectually the tendency to contraction.

I may add that long-continued and forcible extension of the limb

gives rise to considerable pain when the muscles are in the state of chronic contraction—pain so severe that the patient cannot bear the extension for any length of time.

[Dr. Todd then makes some observations on the influence of electricity on paralysed limbs. He says,]

I may first, however, call to your recollection the doctrine of Dr. Marshall Hall, that, when the influence of the brain upon a limb has been withdrawn, the irritability of the muscles of that limb becomes considerably augmented, and that, therefore, in hemiplegic paralysis, the muscles of the paralysed limb are more excitable by the galvanic stimulus, than those of the sound limb. The results of my experiments have led me to a somewhat different conclusion from that of Dr. Hall; and I would refer you to an account of these experiments published in the last volume of the Medico-Chirurgical Transactions.

My experiments led me to arrange cases of hemiplegic paralysis into three classes, according to the manner in which the electrical stimulus affects the paralytic limbs. In the *first* class, to which belongs the vast majority of the cases, the paralytic limb was acted upon by electricity very slightly or not at all, and in every instance to a less degree than the sound limb. In the *second* class of cases, no perceptible difference existed as to the effects of electricity on the two limbs: these were cases of recent paralysis, the cause of which was not of a depressing nature. In the *third* class, the electricity produced a greater effect on the paralysed limb than on the sound limb; the difference, however, was never very great, and such cases are not numerous: in all of them the paralysis was accompanied by recent rigidity of the muscles.

Now, of the two cases which we have been describing, we found that in the man Hardwick, electricity produced more effect on the paralysed limbs than on the sound limbs; and in this case you will recollect there is muscular rigidity. After the patient had been some time in the hospital, the paralysis became more complete, and the muscles less rigid, and, in the same proportion, their excitability to the galvanic stimulus also diminished.

In the second case—the woman Williams, electricity produced scarcely any contractions in the paralysed limbs, whilst it caused distinct but somewhat feeble contractions in the sound ones; and you will remember that we applied electricity in this case, not only by the electro-magnetic machine, but also by the simple galvanic trough, making use of a small trough, consisting of a few pairs of plates, and also a large trough consisting of a hundred pairs of plates; and whether we employed the frequently interrupted current, as in the electro-magnetic machine, or the continuous current of the galvanic trough, the same results were obtained.

The conclusions to which I have arrived upon this subject are, that when the paralysed limbs exhibit an early spastic or rigid state of the muscles, as in the case of Hardwick, they will be more excitable by electricity than the sound limbs; but if the paralysis be

accompanied by a state of complete resolution of the muscles, the sound limb is most excitable to the galvanic stimulus, and the paralysed limb is scarcely at all to be excited: in the latter case, the nerves of the paralytic limb are in a depressed condition: in the former they are in an irritated condition; and the different effects of electricity in the two cases will depend on the difference of cause of the paralysis;—if the paralysing lesion be irritative, the paralytic limb will be more excitable by the galvanic stimulus; if, on the other hand, it be depressing, the paralytic limb will be less excitable; and thus this difference in the effect of electricity on the two limbs, may serve to guide us in our diagnosis, and we may conclude that the lesion is irritative or depressing, according as the paralytic limb is more or less excitable by the galvanic stimulus.

Medical Gazette, Aug. 4, 1848, *p.* 184.

18.—ON PARALYSIS OF THE PORTIO DURA.

By Dr. R B. Todd, Physician to King's College Hospital, &c.

[As facial paralysis, Dr. Todd observes, is to a patient and his friends a very alarming disease, it is important for the practitioner to be well acquainted with the various kinds of palsy affecting the face, so that a favourable prognosis, when the case will admit of it, may at once be given. The case which formed the subject of the following observations by Dr. Todd, was one of paralysis of the facial portion of the seventh pair of nerves, accompanied by severe pain behind the right ear. Dr. Todd observes:]

The leading character of these cases of facial palsy is the inability to close the eyelids, from paralysis of the *orbicularis palpebrarum* muscle: this is the pathognomonic sign which determines the peculiar nature of the palsy, and distinguishes it from the more serious form of facial palsy which is dependent on disease of the brain and palsy of the fifth nerve. It is remarkable how seldom the seventh pair of nerves is affected by disease of the brain. I cannot say that I ever saw a single instance of paralysis of the orbicular muscle of the eyelids due distinctly to diseased brain; and I have only seen a few in which the power of the muscle appeared to be enfeebled from that cause. Thus we have a point favourable and consolatory to a patient affected with *portio dura* paralysis; namely, that the affection being seated in that nerve affords a strong probability that he is free from disease of the brain; for diseased brain would give rise to a different form of facial palsy, and very rarely, if ever, cause this.

You have only to examine this patient with care, and you will find that he has almost every sign which indicates that the paralysis has its seat in the portio dura nerve. He cannot close his right eyelids; in making the attempt, however, he seems not to have lost the power altogether, for the upper lid is slightly depressed; yet if you put your finger on the orbicular muscle you do not find

the slightest contraction of it. How, then, is this slight depression of the upper lid produced? Watch him closely while he shuts the left eye and attempts to do the same with the right, and you will perceive that at the moment the left eye is closed, the right eyeball turns upwards and inwards to such an extent that the cornea is nearly or wholly concealed by the upper lid, and by this upward movement of the ball the upper lid is slightly depressed. The same upward movement of the eyeball takes place on the sound side at the moment of the forcible contraction of the orbicular muscle. It is a very curious instance of an involuntary movement which cannot be controlled, accompanying a forcible action of another kind; and no doubt has reference to the complete protection of the eyeball against all those sources of injury which would occasion the forcible closure of the eyelids.

Our patient is unable to frown on the right side, while he does so distinctly on the left; neither can he move his scalp on the right side; the corrugator supercilii, and the frontal portion of the occipito-frontalis muscles, are paralysed—and hence these movements cannot be effected. The levatores alæ nasi, and the zygomatic muscles, are likewise paralysed on the right side, and, therefore, the right nostril is motionless, and the angle of the mouth hangs on that side. The orbicularis oris muscle is paralysed as to its right half; the patient is consequently unable to purse up his mouth, and if you ask him to whistle, he will afford you indications of his inability to perform this as well as other actions. In making the attempt to whistle, you may perceive that he contracts the orbicular muscle of the mouth on the left, but not at all on the right, and so he is quite unable to get his lip into the position necessary for the production of sound; and while trying to adapt his mouth for this purpose, he smiles or laughs, as is often the case when you ask a person to whistle, and you are thus enabled to see how completely the action of the features is confined to the left side. The act of smiling or laughing is exaggerated on the left side, and the reason is because the left muscles have lost completely the resistance of those of the right side, which remain perfectly motionless, and which from disease have lost their tone, and have suffered much in their nutrition. For the same reason all the movements of the features which act in symmetry, and which at the same time counterbalance each other, are found to take place to an exaggerated extent on the healthy side. Hence in smiling, laughing, and speaking, the face is drawn more or less to the right side: the distortion takes place on the healthy side, the paralysed side remaining unmoved. The popular notion, in cases of this kind, is that the disease is on the side to which the mouth is drawn. No medical man, however, can fall into this mistake if he be at all acquainted with the real condition of the patient.

Another muscle which is paralysed in this case, and in all cases of the same kind, is the buccinator. Hence the cheek hangs loose, and as the patient speaks, it flaps to and fro. This extreme looseness of the cheek is not an early symptom of this form of paralysis;

it manifests itself more and more, the longer the duration of the disease, and ultimately becomss the cause of symptoms very troublesome to the patient. It interferes not only with articulation, from its looseness and flapping movement while the patient is speaking, but mastication likewise. The palsied muscle allows the food to accumulate between the teeth and the jaw, and fails in its function of supplying the mill with its proper amount of material to be ground. After a little time, patients learn to remedy the defect of articulation which the paralytic condition of the buccinator muscle causes, by supporting the cheek with the hand; and a similar kind of support helps to remove the incoveniences of mastication.

You will observe that all the muscles paralysed in this affection are *superficial:* they are all muscles more or less concerned in the expression of the countenance. The deep-seated muscles are not affected—these are muscles of mastication—the only muscle paralysed, which is concerned in mastication, being the buccinator, which is, however, only accessory to that function, and is as much or more a muscle of expression.

[As the buccinator receives a motor branch from the fifth, in addition to its supply from the seventh, the circumstance of its being paralysed, when the disease or disorder is confined to the seventh pair, is very curious, and has not as yet, Dr Todd remarks, received an adequate explanation. As to the treatment of this affection, much treatment is not generally required when it has arisen from cold or from constitutional causes; mild purgatives, alkalies, or sudorifics, or iodide of potassium, and locally warm fomentations. Leeching or blistering are not so distinctly useful; and strychnine, Dr. Todd remarks, *is of no use* in these cases. If recent otitis be the cause of the attack, more antiphlogistic treatment will be needed, and sometimes even salivation will be beneficial.]

Medical Gazette, Sep. 22, 1848, *p.* 479.

19.—ON THE ATROPHY OF PARALYSED MUSCLES.

By W. F. Barlow, Esq

[In Vol. XVI. of the Retrospect, p. 103, will be found an article by Mr. Paget, on the atrophy of paralysed muscles. The following observations on the same subject will be read with interest.]

There is no law in physiology better known than that of the existence of the nicest possible relation between the action and the nutrition of muscles; and everybody knows that *protracted* rest is a cause of their atrophy; exercise of their nourishment; over-action of their hypertrophy. And this law is one form of the expression of the truth, that life must, to be perfect and fulfil all that it can accomplish, be a busy and energetic life.

Dr. John Reid has shown how a frog's muscles may be nourished by galvanism, notwithstanding their being cut off from the ner-

vous centres. I have seen cases of paralysis (as others must have done) wherein the nutrient operation of this powerful agent was extremely marked. This operation, considered by *itself*, would suffice to make galvanism of the greatest value in the treatment of paralysis; but galvanism has been too much used for what it cannot, too little for what it *can*, accomplish. It is, in general, the best of all the modes of producing involuntary action; it is the most sure, the most manageable, and by far the most widely applicable, since it acts where no motions can be excited otherwise. It was this reflection that led me to suggest that it should be used for the express purpose of preventing atrophy; and I think the reader will be inclined to agree in what Mr. Bowman has said of its power to do so. But where and how far it can be made available in this respect is, strange to say, a matter still in need of close enquiry.

It is *use, not the manner of it*, which nourishes a muscle. Emotion may, clearly, subserve nutrition; and I have lately seen a case of long-enduring paralysis, in which the paralytic muscles were evidently nourished to some extent through being frequently contracted therewith. Nor is it absurd to suppose that the aimless movements of paralysis agitans may, in *some* severe cases of the affection (*literally* cases of paralysis with agitation) aid considerably in checking atrophy.

As a rule, the degree of atrophy in paralysis is in the ratio of its completeness; but the most complete *cerebral* paralysis which can occur, may not be attended by any loss of nourishment, because of the frequently occurring motions, of one kind or other, which are dependent on the spinal marrow. Again, injuries of the cord which are attended by a paralysis in which spasms occur, or reflex actions can be excited, do not cause the same wasting of parts as those accidents which effectually exclude the muscles from the influence of the nervous centres. Dr. Marshall Hall has shewn that irritability may be a test of *cerebral* paralysis, as distinguished from *spinal*, and I have had the opportunity of seeing him employ it. The state of the nutrition of the muscles may, as it seems to me, also help our diagnosis. For instance, if in a case of very *long*-standing and complete paralysis, the muscles be not lax and flabby, but, on the contrary, well nourished, and this in the absence of any measures having been taken to excite them to motion—we may infer that some involuntary action must have occurred from time to time to prevent their atrophy, and if so, the paralysis is *cerebral* only. But on the other hand, muscles may greatly waste, and yet be connected with the cord, so that atrophy is of course no proof of paralysis being *spinal*. An atrophied and paralytic muscle may be more susceptible of the galvanic current than its healthy fellow, as Dr. Hall has shown. But the most favourable condition of all for excess of irritability is, I think, that in which the muscles are excluded from cerebral influence, yet still connected with the spinal cord, and have enough of motion to nourish, too little to exhaust them.

Not only may recovery from paralysis be rendered needlessly slow

and tiresome, by allowing muscles to waste away, but in long-standing cases of this affection, absolutely placed beyond possibility. There may be no efficient muscular fibres spared, but only useless remnants of them.

But in reference to this question of providing for the nutrition of paralysed limbs, I have been much struck by some observations in Dr. West's lectures regarding the consequences of paralysis in early life. There is, as he proves explicitly, an effect of paralysis peculiar to childhood, —"*arrestation of growth.*" Might not this as well as atrophy, be prevented by galvanism? The same cause, I presume, which leads to atrophy in the adult, leads both to atrophy and arrestation of growth in the child.

Dr. West's table of cases is very instructive; he mentions no less than six in which shortening of the limbs took place. Here is an instance: a boy when one year and six months old, was affected with paralysis of the right leg. Nothing was done for it; and when he was three years of age, it was "wasted and *shortened*, but power over it was on the increase."

Supposing a case of this kind wherein the paralysis is completely cured, can anything be done for the lameness consequent on the shortening.? A trial should be made at least; and I think it would be right to advise that the *affected* limb should be used *more* than the *sound* one, systematically and perseveringly, or that the motions of the latter should be purposely prevented at certain times during the employment of the former; for perchance, by these means it might be possible to produce an inequality of growth to the advantage of the shortened member. Occasional galvanism, the use of friction, and the sudden application of cold now and then might also be found useful.

Medical Gazette, Sept. 29, 1848, *p.* 529.

20.—ON THE IRRITABILITY OF MUSCULAR FIBRE.

By Edwin Lee, Esq., London.

[The remarks on this subject by Mr. Lee were occasioned by the following observation of Dr. Marshall Hall:—]

"No one seems to have seized the real value of the facts laid before the Society, as setting forth the cerebrum as the exhauster, and the spinal cord as the source and restorer, of the irritability of muscular fibre in voluntary muscles, two important principles in physiology," &c.

Admitting the general correctness of Dr. Hall's facts and experiments, I cannot but consider, in common with many others, that the deductions which he has drawn from them are not uniformly in accordance with sound physiology, or prove the spinal cord to be an independent nervous centre; inasmuch as a distinction has not been sufficiently made between the results of experiments on cold-blooded, and the young of some warm-blooded animals, and those

which would be obtained by analogous experiments, if made only on the higher order of mammalia. I humbly conceive, that in this higher sphere the reverse of the above aphorism more especially obtains—viz., that muscular movements, through the intermedium of the spinal cord and nerves, are the exhausters of irritability, and that the cerebrum is the source and restorer of this power.

We see that during the partial suspension of the cerebral power over voluntary muscles, as in sleep, it is only the automatic and involuntary movements which are most easily evidenced on external stimulation: and which, by attention and the exertion of the will, are controlled when the brain is in full activity, as in the waking state, and in instances analogous to that cited by Dr. Baly, of the movements produced on tickling the infant's palm while asleep. The action of the cerebrum is still requisite, though not so directly as when volition is called into play. It is well known, also, that in cases of paralysis, the attention and the will have great influence with respect to the muscular movements and the sensibility of the paralysed parts. I need not do more than allude to the many instances of cure of long standing paralysis from mental impressions, and cases analogous to that recorded by a philosophical writer are occasionally met with. In a hemiplegic patient, completely paralysed as regards the power of movement, all external impressions made directly upon the paralysed parts were acutely felt; but when the irritating object or cause was concealed from him, as in pinching or pricking under the bed-clothes, the patient had no perception of the pain, or knowledge of the part irritated, though he experienced a general feeling of annoyance.

M. Cruveilhier observes, with reference to impressions made on the skin, in cases of paralysis, that the impressions are often very tardy, not being perceived by the patient till the expiration of fifteen, twenty, or thirty seconds; and some patients are insensible to pinching, though sensible to tickling the soles of the feet: and again, "There are cases of hemiplegia in which there is no tactile sensibility, nevertheless, external stimulation will produce more or less powerful shocks, of which the patient is unconscious. Thus, a patient may have no perception of tickling the soles of the feet, which, however, occasions sometimes abrupt movements, sometimes slight movements of the toes, sometimes only a fibrillary contraction of a muscle or muscles. Pinching, pricking, heat, cold, and other modes of stimulation, may produce like effects; but be it observed, that the faculty of thus provoking movements is soon exhausted, and that a longer or shorter period of repose is requisite for the power to be regained. These instances, to my mind, clearly prove that the cerebral influence, though weakened, is not altogether absent.

Thus, also, as respects the tone of the sphincters, (erroneously considered as a purely spinal function,) which are well known to become relaxed from stupor, intoxication, emotion, and other causes affecting the brain; and likewise, the continued action of the muscles of the back, and back of the neck, which maintain the

trunk and head erect in the waking state, the cerebrum is the exclusive source of power.

With respect to galvanic excitation, the doubts expressed by Dr. Todd, as to whether a feeble galvanic current can penetrate to the muscles through the skin, and the opinion, that by its stimulation of the cutaneous nerves reflex actions are produced, seem to be solved and confirmed by the effects of the other modes of stimulation which have been adverted to, in which excitation of the surface (tickling) will often produce reactions, which pinching, &c., would fail to do. This shows, as Dr. Todd observes, with reference to the direction of the current exercising a decided influence in the one instance, and no material difference in the other, that the galvanic current acts primarily upon the nerves, and only secondarily through the nerves upon the muscles. This view is further confirmed by an experiment of Matteucci, in which a pile, composed of the muscles of fishes, frogs, and eels, showed several hours after death evident signs of the current; whereas a pile of the muscles of birds and mammifera gave no signs of excitability at the expiration of a few minutes; this difference of result manifestly depending upon the circumstance, that in the former class of animals the nervous influence and vitality are more universally and equably diffused throughout the organism, whereas in the latter they are more centralized. This opinion I not long ago expressed to Professor Matteucci, in a conversation with him, relative to a statement made by him—viz., that the current is maintained independently of the direct influence of the nervous system, and is not modified even when the integrity of this system is destroyed.

Lancet, April 29, 1848, *p.* 474.

21.—*On the Treatment of Paralysis from Lead.*—By Dr. R. B. Todd, F.R.S., &c.—In the treatment of lead-palsy, the great object is, if possible, to eliminate the poison from the body, and to prevent the introduction of further supplies of it.

The patient should be kept clean, should wash much, and use such means as friction, exercise, &c., to stimulate the excreting power of the skin.

It has been thought that sulphur, when introduced into the system, has the power of neutralizing the effects of lead, by forming some innocuous compound with it; whether or not any such compound is formed I cannot say, but I have certainly found sulphur a very useful remedy, in the form of a sulphur-bath. The bath which I order for my patients consists of one, two, or three ounces of sulphuret of potassium, mixed with as many gallons of water. I give this to my patients empirically; but I am quite sure they derive much benefit from its employment.

Galvanism, as a local stimulant to the nerves, should not be neglected; I am certain it is of service. Our patient Halliday was much improved by it; and I mainly attribute the recovery of his power of moving his deltoid muscle, which he has now done, to its use.

In the use of galvanism, you must take care not to continue its employment too long each time. Half an hour each day, or still better ten minutes or fifteen minutes at three different periods of the day, will be found quite sufficient.

Added to this, the subjects of lead-palsy should breathe pure air, and have good sustaining food.

Medical Gazette, July 14, 1848, *p.* 53

22.—*Case of Paralysis from Arsenic.*—By Dr. Hastings, Worcester.—[A lad of 16 years old, an out-patient of the Worcester Infirmary, after taking the liquor arsenicalis in doses of three to five drops thrice a day for seven weeks, for an eruption of a scaly character, was found at the end of that time to be suffering from great weakness and partial paralysis of both upper and lower extremities, with burning pain in the feet; the conjunctiva was also slightly inflamed, and there was a little pain in the epigastric region. The warm bath and preparations of iron were prescribed, and afterwards iodide of potassium and the application of galvanism; under which treatment he gradually recovered. The following remarks were made upon the case.]

Dr. Hastings observed, that the quantity of arsenic taken was so small in this case, that for some time he doubted whether the paralytic affection could arise from this mineral; but as all the symptoms which usually arise from this remedy were also present in a very remarkable degree on the progress towards recovery, he had come to the conclusion that from some constitutional peculiarity the patient was affected in this unusual manner. The man had nearly recovered the usual power in all the limbs, but Dr. Hastings was desirous of learning whether similar effects, from the use of arsenic in small doses, had come under the notice of any of the gentlemen present.

Dr. Tunstall, of Bath, said,—For the last five years and a half I have been attached to the Bath Hospital, as its resident medical officer, during which time I have had on an average from three to five patients always under a course of arsenic prescribed for the cure of lepra by my superior officers; from my experience I may safely assert, that the safe and efficacious dose is from ♏iij. to ♏v. twice a day, continued until the physiological effects *commence*, when the disease succumbs. The first appearance of redness of the conjunctiva, with febrile lassitude, constriction of the throat, and mucous irritation of the stomach, are signs that the constitution is under arsenical influence. By closely watching cases, I have never seen any of the severe effects of the protracted use of the remedy, but I am in a position to assert that all the good derivable from arsenic as a remedy, is produced by small doses cautiously watched. Mr. Hunt, in criticising Dr. Castle's case of poisoning by Fowler's solution, refers it to idiosyncracy, and throws a doubt upon the fact of its having been fatal, relating a case where a patient of his own took forty minims thrice a day, with "but slight inconvenience." Will Mr. Hunt, or any gentleman present, say that this dose could have been continued for even three days more, without producing

the effects detailed by Dr. Hastings in his valuable communication? In estimating the fatal quantity of successive doses of a poisonous remedy, we have to consider the effects of *climate*, *locality*, and *temperament*, not mere idiosyncracy, for all these are important in estimating the doses and period of their continuance. Mr. Hunt states that out of the records of a multitude of cases, in no one instance did it appear that the medicinal exhibition of arsenic, not always cautiously administered, has proved either fatal or seriously detrimental to health, which is more than can be said of any other very active medicine. This, which I copy from the report of the South Eastern Branch of our Association, must not go forth uncontradicted. I cannot admit either the fact or the deductions; were I to do so I should be accessory to the death of thousands. Two cases I will relate:—

Mary Bottle, a healthy young woman, 21 years of age, is now a patient in the hospital for the cure of lepra. On the 6th of July she had prescribed for her the liq. arsen. potassæ, ɱiij., twice a day. On the 13th I found her thoroughly prostrate with the arsenical symptoms, and having watched her daily, I know that she only took thirty-six minims in twelve doses. I shall be happy to shew this case to the members, and point out the peculiar glassiness of the conjunctiva, which is characteristic of the *continued* effects of a *previous* exhibition of the remedy, which produced the most marked effects on the specific disease. She has regularly continued the use of the thermal waters of our city, so useful in lepra and in combatting the effects of metallic poisoning, and is rapidly approaching a perfect cure.

The other is that of a young man, now under treatment for the cure of lepra, who discontinued the use of the liquor on the 4th of June; he has still the lassitude, the incapacity for active exertion, and the glassiness of the conjunctiva, and any slight cold reproduces the arsenical effects; he has been using the waters since that period and the skin is rapidly cleansing.

I have to remark that this truly valuable remedy should not be given to patients in the quantities so common in some parts of the country, where a half ounce bottle, with directions to take a certain number of drops twice or three times a day, leads to much unsuspected mischief; that we ought in the present advanced state of chemical science, to pause before we condemn persons for murder on *post mortem* evidence of the presence of minute quantities of arsenic, in order that we may obtain some particulars of the medical history of the deceased. Had Mary Bottle taken a few more *minute* doses, she would have died from taking, perhaps, one-fourth of the quantity taken by Dr. Castle's patient. Mr. Hunt may deny this, but I think I should have no hesitation in making an affidavit that she would have died from the cumulative effects of small doses of arsenic. In conclusion, allow me emphatically to say, that arsenic is a remedy which produces its beneficial effects by the slow accumulation of small doses; that these should be omitted on the first appearance of conjunctivitis, or other well-known physi-

ological effects, in however slight a degree; and that where these are absent, the successive doses ought never, in the aggregate, to amount to what would, if administered in one dose, either be fatal or in quantity approach the minimum fatal dose on record.

Provincial Medical and Surgical Journal, Aug. 23, 1848, *p.* 459.

23.—ON THE USE OF THE ELECTRIC MOXA IN HEMIPLEGIA.

By Joseph Hinton, Esq.

[Some account was given in Vol. XVI. of the Retrospect, of a new method of applying counter-irritation by means of galvanism, for which we are indebted to Dr. G. Bird's researches. The following, Mr. Hinton tells us, is the case in which this plan was first tried. A man 32 years of age was admitted into Guy's Hospital under the care of Dr. Bird, suffering from hemiplegia. The attack had come on about three weeks previously, and had been treated antiphlogistically till the active symptoms subsided. When admitted into the hospital, he dragged the affected leg only in a slight degree, but the arm was perfectly motionless, and the right facial nerve was paralysed; he had occasional vertigo and pain in the head, and constant tendency to laugh when spoken to; the tongue turned to the paralysed side, and had a thickish fur on that side only. The treatment consisted in the administration of a purgative, and the use of electricity in the form of sparks drawn from the spine: and sulphate of zinc in grain doses thrice a day. On the 15th of January, sixteen days after admission, he was a good deal improved.]

From this date (Mr. Hinton says) little alteration took place until the 18th, when Dr. Bird ordered the following plan to be adopted. Two blisters having been formed, one about the insertion of the deltoid, and the other over the posterior part of the wrist-joint, a zinc plate, the size of half-a-crown, with copper wire attached, was applied to the upper and a silver plate to the lower. Over each plate, water dressing was applied, and above this, oiled silk, (merely for the purpose of retaining the moisture), which was secured by strapping. The arm was then enveloped in a loose roller, through the folds of which the wires connected with the plates protruded, and on contact being made, the patient experienced a tingling sensation *at the silver plate alone.*

19th. About 3 A.M. he experienced severe pain in the arm, which soon wore off. Motion very much improved; the arm can be raised to a level with the shoulder, and power over the fingers is greatly increased. The patient was quite delighted at the sudden progress which he had made. Tingling sensation still experienced. The apparatus was taken off in the evening; the surface of the upper sore (zinc) was coated with a firm whitish matter, like lymph. Nothing peculiar about the lower sore; the plates were again applied. For the next few nights he experienced severe pain and

spasm of the muscles of the arm, but this did not last long. On the 20th and 21st, he thought that there was less motion, but on trial he could still lift the arm on a level with the shoulder. On the 22nd, he lifted it above the level of the shoulder, and could clasp slightly. On the 23rd, he could lift his arm on to his head. The slough forming on the zinc sore, appears to increase in thickness. Before taking off the apparatus, I tried whether any current was passing, but failed in obtaining any decided effect on the galvanometer. With another patient, who was then in the house, by constantly breaking and reforming the current, the needle moved over an arc of 30°.

[When the slough separated, a healthy granulating sore was left He continued to improve for some time, the dose of zinc being increased gradually to seven grains. Mr. Hinton makes the following remarks on the case:—]

As connected with this case of hemiplegia, there are several points of great physiological interest,

1st. Emotional tendency.

Dr. Watson, in his Lectures, says, "after the coma has passed off, there are two ways in which the patient may be affected—1st, defective memory, more or less partial; and 2nd, a peculiar tendency to emotion, especially *emotions of grief;* the patient will weep from slight causes long after the attack of apoplexy has passed off."

[The emotional tendency in this case, however, was characterized, Mr. Hinton observes, by a desire to laugh. He proceeds—]

2ndly. As regards *sensation* and *motion.* The law in cerebral paralysis is, that motion is more affected than sensation. When we meet with cases, in which the opposite is shewn, we must look for some functional disturbance, some poison circulating in the blood, rather than to the existence of a clot. The influence of the inhalation of ether is a case in point, motion being little affected. Dr. Gull has offered the following explanation of the cause:—he says, "the law of lesion is this—any given injury to the fibres diminishes the power of motion more than that of sensation, whether the lesion be in the fibres passing from the corpus striatum, or from the optic thalamus to the convolutions." Two conditions arise from this—1st. the fibres of the sensory nerves are much more, say one-third, more numerous than the motor, if we may judge from the size of the posterior roots, as the fibrils have the same diameter. The ultimate stimuli, also, to the sensory nerves, are more numerous than those of the motor.

"2ndly. In *sensation*, the seat of perception is to a degree passive; in *motion*, it is an origin of power. It is evident that in the former a less vital condition is required than in the latter; hence *á priori* we should have concluded that a given injury would have destroyed volition more than sensation; and we should also have concluded that injury would first deprive us of directive influence, and then

of the power altogether. These remarks are made, as bearing upon the received theory of there being distinct centres for sensation and motion, which hypothesis seems to have been unwarrantably built upon the great discovery of Bell on the double function of nerves, which discovery is by no means opposed to the idea of sensation and volition being in the same centre."

3rdly. The more rapid recovery of the leg. This is important, inasmuch as it may mislead the inexperienced to suppose that the arm will also recover. Unfortunately this is too frequently found to be a false hope; hence the prognosis as regards the arm should be guarded. The reason for this, Mr. Mayo supposed to be that some shock was transmitted from the injured brain, and that in consequence it affected the nearest part most. Dr. Watson remarks, that if this were the case, we ought to have it always present; but out of seventy-five cases collected by Andral, twelve were of the leg alone. Dr. Gull offers the following explanation:— "The spinal cord, the nerves arising from it, and the muscles to which they are distributed, form a mechanism for motion, which acts according to laws included in its formation, and which can be modified by habit, becoming part of the law of the machine, and termed *automatic*. The volition, having its origin in the encephalon, can direct and move the machine. From observation, we find that the voluntary influence can be directed with the greatest precision and force upon the upper extremity. We also find, from observation, that, the spinal cord being separated from the direct influence of the encephalon, the arm reacts less on an impulse being given to its nerves, than the lower extremity, from which we may infer that the original automatic power of the arm (excito-motor power) is less than that of the leg. Hence, if only a certain influence passes to the spinal system from the encephalon, the leg will be more affected than the arm; that is to say, in other words, volition will be more marked in the lower than in the upper extremity in recovery. Another circumstance must be taken into account in considering the phenomena of recovery from a clot—viz., that as the nervous centres are everywhere continuous, and that each part is readily affected by injury to those adjacent, so any given injury to the encephalon will react most on that part of the spine which is nearest, *cæteris paribus*.

The twelve cases noticed by Andral may appear to negative this view; but it remains to be proved by further observation whether these cases were really genuine cases of hemiplegia from cerebral hæmorrhage, or whether they may not be more correctly attributed to spinal affection. Two cases have lately come under Dr. Gull's notice, in both of which, on careful examination, the spine was found to be implicated. One of these is an out-patient; the other is at present in No. 3, Charity ward. In the latter case it appears doubtful whether any cerebral hemorrhage took place at all, and whether the cerebral symptoms may not be referred to increased vascularity alone.

4thly. The *involuntary raising* of the *arm* during the act of *yawn-*

ing. This fact is mentioned by Carpenter, but no attempt is made to offer any explanation. Here also I may state an explanation proposed by Dr. Gull:—"This may be explained by the fact that injury to any of the fibres going from the corpus striatum or thalamus opticus to the convolutions, diminishes the power over the extremities:

Thus, if the line of continuity from A to B be interrupted, no force can pass from A to B; but if the force originates in B, it may pass on to C below it. Now if we let A represent the cerebral hemispheres, and B the medulla oblongata, C the brachial plexus, the explanation is tolerably clear.

5thly. *Irregularity of pupil.*—The third nerve arising above the bifurcation ought to be affected on the same side; and so it was in this case; the left pupil was considerably larger than the right.

6thly, and lastly. The *state of the tongue.*—This I have not seen noticed in any book: it is frequently connected with local irritation on one or other side of the mouth, such as cynanche tonsillaris or diseased teeth; but there was nothing of the kind to account for it here. Might it not arise from the want of motion on that side of the tongue; so that, being less subject to friction than the sound side, the mucus, &c., collects upon it, and remains there while the other side is less free? In this case it varied from time to time, being occasionally absent, but most frequently it was well marked.

Medical Gazette, July 7, 1848, *p.* 30.

24.—ON THE THREATENINGS OF APOPLEXY AND PARALYSIS.

By Dr. Marshall Hall, F.R.S., &c.

[Dr. Hall makes the following observations on]

The theory, prevention, and treatment of paroxysmal apoplexy, or of that form of apoplexy, with its too usual sequel, paralysis, which, arising from causes distinct, in the first instance, from *disease* within the head, appears in the form of *threatenings*—the minæ apoplexiæ of the classic Heberden.

[These threatenings consist in a seizure of vertigo, loss of recollection, confusion of ideas, with a tumid purple countenance, which may pass off and be forgotten, or may again and again recur, until it ends in the organic apoplectic seizure. In attempting to elucidate the nature of this paroxysm, Dr. Hall first argues that the tissues of the head and neck are in a manner erectile. He says:—]

The whole region of the head and neck, with the encephalon, and the several organs of mind, of sense, and of motion, is doubtless made up of tissues which may be compared to the erectile.

The eye becomes erect when we *look* earnestly and intently. If we attempt to read whilst walking, and meeting the wind, it speed-

ily becomes suffused with tears, no such effect being observed when, in similar circumstances, we do not urge the organ into intenseness of action. For this reason the oculist desires the patient affected with ophthalmia not to use the affected, or even the unaffected eye.

The condition of accurate adjustment of the eye is one of erection, and connected with the action of certain muscles.

Doubtless the ear is affected in a similar manner, and the difference between merely hearing and listening intently, is one of erection of the organ, dependent, like that of the eye, on the action of muscular tissue.

It would be out of place here to say more on this subject, but I cannot resist the temptation to make one remark. Many deaf persons remain deaf from the want of the *habit* of listening, by which the power itself is lost; just as such persons are found to hear when driving along in a carriage though deaf in ordinary circumstances, the act of listening being induced. The slightly deaf person should be exercised in listening—in inducing erection of the tissues of the ear.

In a similar manner, the senses of touch, smell, and taste, may be improved, as is well shown in cases of persons who use those senses to supply the want of others which are lost. All are aware of the singular effect on the tissues of the mouth, on the action of the salivary glands, and of their ducts in propelling the saliva, in the act of mastication, and even from the view, or idea, of savoury food.

So of the brain and its connected tissues. When the powers of the mind are intensely concentrated, the circulation in this region is augmented, and its vessels distended, congested. In the strife for the senior wranglership, the student sits for hours at his subject with a wet towel wound round his head, to moderate the excessive fulness of its vessels.

But great as is the effect of *attention*, that of the various *emotions* is infinitely greater. We have only to watch the effects of shame and of anger, the former so attractive, the latter so repulsive, both so extraordinary, as denoting the action of the muscular system of the neck, and distending the veins, and thence those vessels which, situated between the capillary branches of the arteries, and the capillary roots of these veins, may be justly denominated the *intermediate* vessels or canals of the tissues—the real vessels of those tissues, the rest being but *machinery* for the movements of the blood.

Whatever may affect any erectile tissue, may affect the circulation of the head and neck. This is doubtless principally effected through the special muscular system of this region, and especially that part of this system which influences the larynx, and that which, by compressing the veins, induces fulness, congestion of their roots, and of the vessels which, in the normal and unimpeded circulation, empty themselves into them. These muscles are in a remarkable degree under the influence of emotion and of the excitants of reflex action. Remoter causes which influence the condition of the veins

of the head and neck are, affections of the heart, its dilatation and disease of its valves, and affections of the respiration. To these topics I shall have to revert in the following section, my present object being to treat of the head and neck as purely erectile organs or regions; and of the causes which, influencing the muscular and circulatory systems in such organs and regions, induce the various physiological and pathological conditions observed in them; and especially of those forms of the latter which are periodical or paroxysmal.

Of these last even apoplexy and hemiplegia, and other forms of paralysis, are examples. The threatenings of apoplexy, the transient forms of paralysis, are of this character, and constitute an object of medical study of the most intense interest, inasmuch as the *prevention* of incurable, or imperfectly curable disease, too often ageing the young, and crippling the aged, depends upon it.

[After speaking of the effect of a ligature gently applied round the leg of a frog, upon the circulation in the web of the foot, as seen with the microscope, Dr. Hall proceeds to say:]

Now let us imagine the jugular and vertebral veins of the neck compressed by the platysma myoides, the cleido-mastoid, the omo-hyoid muscles, &c. The effect of emotion, or of reflex action, impeded circulation, distension of the veins, congestion of the intermediate blood-channels, tumefaction and venous lividity of the features, and of the conjunctiva, and a similar condition of the encephalic tissues take place, with the varied cerebral, visual, and auditory symptoms—paroxysmal apoplexy. How happy if it proceed no further!

This compression of the veins of the neck, is various, and quite special in different cases. Contraction of the platysma-myoides, for example, affects the external jugular chiefly; a more gentle, but more general action of the muscles of the neck leads to more general compression of the veins, and sleep; a more specific action induces blushing, which may be limited to the cheeks, or diffused over the head, face, neck, and bosom; a fit of anger is not only a "furor brevis," but it is a brief and violent sphagiasmus and cerebral action and congestion; compression more sustained and complete leads to cerebral congestion and all its formidable symptoms—loss of memory or of consciousness, drowsiness, stupor, coma, &c.

From this cause I have also observed, and most carefully observed, transient delirium, mania, spasm, paralysis, in cases which I propose to detail hereafter.

Other causes of abnormal circulation in the head and neck exist. Diseases of the heart itself, of which *one*, hypertrophy, augments the flow of the arterial blood, and of which *all* induce impeded circulation along the veins—a fact of far greater moment, have their influence in inducing the apoplectic state. But it must be remembered, that the influence of disease of the heart in inducing impeded venous circulation, is a remote effect, through the pulmonary circulation. It is a part of the subject of the *arrière circulation*, which I have elsewhere treated at some length.

The difference between augmented flow of blood along the arteries, and its impeded return by the veins, on the *intermediate* blood channels and organs, is extreme.

The most violent *exercise*, as in running, the respiration being free and proportionately accelerated, only suffuses the face with florid blood, freely circulating; violent *effort*, on the contrary, as in lifting, in which respiration is arrested by closure of the larynx, induces a purple tumefaction of the tissues of the face and neck, from impeded flow and stagnation of venous blood. It is the difference between *augmented* and *impeded* circulation.

There is a great difference, too, between the *degrees* of impediment to the return of venous blood—the violent muscular efforts in ordinary vomiting, fits of coughing, &c., fill the tissues of the face with venous blood; but still more violent acts of vomiting, the efforts of parturition, the convulsions of epilepsy, actually cause the thin parietes of the blood-channels of the face to yield, and induce minute *ecchymosis*, seen in the eyelids and on the temples.

Let the impediment to the reflux of the venous blood be greater still, and especially more specifically of the veins of the neck, and we cannot be surprised at the occurrence of loss of consciousness—cerebral epilepsy, if transient, apoplexy, if more permanent, with or without cerebral *ecchymosis*. A tumour, or ligature, or spasmodic action of the muscles, compressing the veins of the neck, produces this effect.

Much, too, depends on the degree of suddenness of this compression. In diseases of the heart, we observe the features tumid with venous blood without apoplexy, which may, however, occur eventually gradually. But the sudden compression of the veins of the neck, from the action of the platysma-myoid and omo-hyoid, induces the apoplectic state instantly.

This apoplectic state may consist of mere congestion, and is then transient; or of ecchymosis or rupture, with laceration of the brain, and is then persistent and hemiplegic; or if the attack of mere congestion be often repeated, effusion of serum may take place from the internal surfaces of the cerebrum.

A further difference may consist in the difference of the vein or veins affected: the jugular seems to be in more immediate connexion with the cerebrum; the vertebral with the medulla oblongata; at least I think this probable.

It is extremely interesting to observe the influence of impeded or arrested flow of blood in the veins upon the *arteries*. I have already alluded to the experiment of applying a ligature on the inferior extremity of the frog, in which this is *seen* under the microscope. The phenomenon deserves to be noted more particularly.

If we tie a ligature round the frog's leg, the web being spread under the microscope, we instantly see the whole circulation, which was equable, or nearly so before, become pulsatory. If we tie the ligature a little more tightly, the globules of blood are observed to oscillate even in the arteries, and to proceed and to retrograde, at

each systole and diastole of the heart. The intermediate vessels, meantime, become distended with blood, and even dilated in their diameter. So, in sphagiasmus, the temporal and carotids *throb*, whilst the tissues of the face and neck, and even the chest, become tumid, and purple with venous blood; the patient complaining that his cravat is tight; that he is giddy, and in danger of falling; or oblivious; or incapable of mental effort or attention; or dosy, falling asleep over his book, and even over his writing.

As to efforts unattended by closure of the larynx, as the rapid ascent of a hill, they have no tendency to produce apoplexy, or extremely little. It is not accelerated arterial circulation, but impeded venous circulation, which is the source of danger.

It is because they do not act by inducing sphagiasmus, specifically, but more generally on the venous system, that efforts, whether voluntary, as in lifting, or involuntary, as in vomiting, do not, in general, lead to the apoplectic seizure.

[The following appears to be a summary of Dr. Hall's views:]

The tissues of the neck, face, and head are subject to influences similar to those which affect the erectile tissues. The former, like the latter, become tumid by certain emotions, as shame, anger, &c., and collapsed by others, as fear, anxiety, &c.

Shame and anger suffuse and tumefy the countenance, the eyes, the cheeks, the forehead, the neck, and even the integuments of the thorax, distending the capillary vessels. A fit of anger, and especially of suppressed anger, has passed into an attack of apoplexy. Sphagiasmus has existed in such a degree as to overdistend, or even to induce yielding or rupture of the capillary canals.

What certain emotions effect, is effected too by a loaded condition of the stomach. The tissues of the face and neck are affected with capillary or venous congestion, and the patient—for such he is—becomes affected with a sort of sub-apoplexy—dozing, or rather sleeping, heavily, and with stertor.

As the effect of emotion in one case, and of excited reflex action in the other, the muscles of the neck are brought to contract on the veins of the neck, (and as in epilepsy it is chiefly the veins returning from the medulla oblongata, so it is in the threatening of apoplexy those which return the blood from the cerebrum and cerebellum,) and the sub apoplectic state is induced.

But it is, as I have stated, the agitation of speculations in commerce which most conduces to dangerous congestion of the cerebral vessels, and the danger of the apoplectic or paralytic attack, as of epilepsy, and of others of *this class* of diseases, as mania, suicide, &c.,—so perfectly allied are these apparently dissimilar morbid affections.

[And as to treatment, Dr. Hall gives the following hints:]

The slightest paroxysmal occurrence of head affection should be as a most earnest warning voice to the physician and to the patient,

being carefully traced to its cause—whether this be emotion, with its direct influence, or irritation, with its reflex action, on the muscles of the neck, and its consequences on the venous circulation of the encephalon.

This warning voice unheeded, and apoplexy, hemiplegia, or more partial paralysis, and the loss of the mental faculties, are the consequence: the young become old and decrepid, the aged become infirm and crippled, in a moment of time.

All emotion should be mitigated or removed by absence and recreation—affairs should be relinquished, and diversion, and change, and active occupation, should be sought carefully. *The* remedy of remedies is—*travelling*.

The source and nature of the irritation should be discovered; the stomach and intestines should be kept absolutely free from all indigestible ingesta, and from excretions too long retained; uterine irritation should be as carefully allayed.

On the occurrence of the *slightest* admonitory symptom, the patient should be enjoined to take some fluid, and promptly and effectually to irritate the fauces and induce the vomiting; and then to use an ample enema. He should then, if necessary, take an efficient emetic and purgative.

These remedies should be kept in readiness at all times and places. They are equally important, whether the apoplectic, the epileptic, or the maniacal seizure be portended.

The most rigid system of diet, the strictest attention to the state of the bowels, the utmost care at catamenial periods, should become the patient's duty, and be most conscientiously performed.

In the actual attack, an effectual emetic, enema, and purgative should still be speedily administered, together with instant venesection. Afterwards, in the case of uterine irritation, fomentations, enemata of warmer water, perhaps slightly opiate, should be administered.

As preventives, early hours, a raised position in bed, the head being kept cool, and the stomach being empty; freedom from emotion; ample walking exercises in the course of the day, with a very light digestible diet, and an unloaded condition of the bowels; great attention at the catamenial periods, &c., and all these well-sustained, are the most important.

The objects throughout are,--to avoid all exciting causes, to remove these if they have been allowed to exist, and to exchange the morbid actions for others. In this last point of view, the excitement of vomiting is most important. Cold water may also be dashed on the face and neck, to excite other actions—the act of inspiration, by which the veins are emptied, especially. With the same views, the nostrils may be irritated. In a slighter attack, the patient should be instructed to make frequent, energetic, and deep inspirations voluntarily.

It is scarcely necessary to add, that the most *direct* remedy, in the case of actual seizure, is to relieve the sphagiasmus by opening

the external jugular at once, or emptying the intermediate cutaneous vessels by cupping.

The reader is, doubtless, now convinced of the importance of a full development of the *theory* of apoplectic, of convulsive, and of maniacal affections, for *all* these are closely allied. The *first* step towards the comprehension of this subject was the separation of *The Spinal System*, with its excito-motor, reflex actions and functions, from the cerebral and the ganglionic; the *second* is the due appreciation of the direct and reflex muscular actions, and their varied influences, taking place in the important region *of the neck.*

It must be remembered that the preceding observations relate entirely to what I beg to designate *paroxysmal* apoplexy.

Lancet, July 22, 1848, *p.* 93.

25.—*On the Treatment of Apoplectic Symptoms arising from Disordered Liver.*—By G. Corfe, Esq., Middlesex Hospital.—When we review the comparative analysis of the effete matter thrown off by the liver and kidneys, and observe the large amount of carbon and nitrogen which these organs separate from the circulation, it need not be matter of surprise that similar disturbances arise in the head and the nervous system, generally, from a gorged and torpid liver, as are seen to occur from urea and other elements of urine being pent up in the system, from degeneration of structure in the secreting portions of the kidneys.

Why should not the elements of bile, so long as they circulate in the system, and are not duly and actively eliminated by the lobules of the liver, be considered equally as poisonous to the nervous system as is urea in ischuria renalis, or as is laudanum when taken for a suicidal purpose?

It has repeatedly happened that a bulky, strong, and perhaps plethoric labourer seeks relief amongst the casual patients in the out-door department, complaining of a distressing sense of giddiness, fear of falling down in the streets, tinnitus aurium, sleepless nights; or else the very reverse, heaviness, and disposition to sleep at all hours of the day, if he only sits down for a few minutes. Such symptoms, it must be acknowledged, are too often assigned as the precursor of apoplexy, and the man is actively bled, cupped, and blistered. No observing practitioner will deny that such alarming features of a case demand some vigorous and active treatment; but the question at issue is simply this:—Do such symptoms fade away under the active antiphlogistic treatment so readily pursued by many? Doubtless they do not. Whereas, if, as is usually the practice here, the patient is ordered to take a full dose of calomel, for instance ten grains, and the same quantity of extract of colocynth, and that the latter is repeated three or four times a week in smaller quantities, followed by a cathartic draught; and, further, if the alvine secretions are observed to pass from a dark mahogany colour to that of an ochrey tint; the usual result

is a disappearance of all the cerebral symptoms, in proportion to the clearing of the loaded gall-bladder and its adjoining ducts.

The late Mr. Abernethy was accustomed to observe to his class, in his usual quaint style, that if ever they wanted to solicit any favour from some superior in life they should be careful to make their wishes known, first, to the *valet de chambre*, ascertaining from him at the same time, if possible, whether his master had been to the water-closet that morning, and whether he had been comfortable and pleasant in his temper since; for, said he, "if an irritable fellow does not get a comfortable evacuation every morning after his breakfast, he is sure to be sour and irascible the whole day afterwards."

There is much truth couched in this rude observation, and the influence of the hepatic circulation and secretion over the nervous system is too remarkable to escape the attention of a practical man.

Medical Times, Aug. 12, 1848, *p.* 235.

26.—*On Fluid within the Ventricles as a Cause of Coma.*—By Dr. R. B. Todd, F. R. S., &c.—The accumulation of fluid in the ventricles, when it exceeds a certain amount, produces coma. In the adult the comatose symptoms come on earlier, and with a less amount of effusion than in the child, from the resisting nature of the cranial wall in the former, whilst in the latter, the still open state of the fontanelles, and of some of the sutures, allows the skull to expand as the fluid in the ventricles increases in quantity.

On the other hand, the increase in the subarachnoid fluid is not in itself accompanied by any special symptoms. This augmentation of a fluid which naturally occupies the subarachnoid space, is due entirely to a shrinking or diminution in the bulk of the brain, from whatever cause; and its quantity bears, too, an inverse proportion to the bulk of the brain. You find it in large quantity in the crania of persons dying anæmic, and also when the brain has been much impaired in its nutrition, so as to cause a diminution of its bulk; and even if there be a local diminution of bulk, as when one or two convolutions have shrunk, or have sunk in from the destruction of the subjacent cerebral substance, you will find an accumulation of fluid opposite the shrunk or depressed convolutions.

Medical Gazette, Aug. 25, 1848, *p.* 319.

27.—*Suggestions for the Treatment of Hydrophobia.*—By Dr. Marshall Hall, F.R.S., &c.—If a frog be subjected to the influence of strychnine, two events may take place :—

1st, If it be continually excited to spasm by the irritation of a probe, life becomes extinct in a very few minutes.

2nd. If, instead of being so irritated, it be placed in a cool place, as a cellar, all excitation being avoided, it as certainly recovers.

A third order of facts is one of extreme importance. The effect of strychnine is *not* one of a spasmodic condition, *but* of extreme

susceptibility to spasm. This susceptibility is seated in the centre of the spinal system; but each and every spasm is an excited reflex action.

In this *last* respect hydrophobia exactly resembles the effects of strychnine. May it not in the *first* and *second?*

But in hydrophobia the patient dies of *asphyxia*, arising from repeated paroxysmal closure of the larynx.

Imagine this asphyxia and all excitement of reflex action avoided. Of what, then, would the patient die? and why should he necessarily die?

I have often thought of a prompt mode of performing the operation of tracheotomy. This being accomplished, whatever spasm of the larynx there might be, there could be no asphyxia.

The patient should then be carefully placed on a *spring*-bed, and surrounded by ranges of curtains of lace or "*net*," and every *current* of air, every *shake* of the *bed*, or of the *floor*, in a word, every excitation or cause of *reflex action* and of *emotion*, (for these generally go together, the same *spinal centre and system* being the seat of both) should be absolutely avoided.

The patient could not, as I have said, die of asphyxia; he would not die of the nervous exhaustion induced by the continual excitement of emotional and reflex actions. Why, then, should he die? Why should he not survive, until the poison should be eliminated from the system?

Tetanus differs from hydrophobia in being a disease of *reflex*, not *direct origin*. and, perhaps, in being more or less persistent; but it is equally *paroxysmal* in its aggravations, if not in its actual existence, and requires in its treatment the same measures to avoid excitation.

Many other fatal diseases, besides hydrophobia, might be treated, with the hope of saving life, by the simple mode of performing tracheotomy which I have proposed, if *perfected.*

Instrument for the Performance of Tracheotomy : invented by Dr. M. Hall.—This instrument consists, first, of a cylinder of steel, of the proper diameter, and with its lower edge extremely sharp. It may be either circular or oval, with greater or less eccentricity. Within this cylinder a piston moves, which being drawn upwards, admits of being removed altogether, whilst another cylinder, of which one side overwraps the other, admits of being compressed and introduced into its place. This cylinder is pushed so as to project beyond the cutting edge of the former, expands, and makes gentle pressure outwards, so as to occupy its place, and to prevent hæmorrhage. The steel cylinder is then removed. Finally, from the silver cylinder two-thirds admit of being detached, at a part on which a silver disc admits of being fixed.

The instrument being placed over the trachea, at the point chosen by the surgeon, over which an incision is made through the

integuments, it becomes an "emporte morceau." A portion of the trachea being detached, and forced into the cylinder as the piston is drawn upwards by the atmospheric pressure from within the trachea, the operation of tracheotomy is performed, and without the loss of blood. The silver cylinder being now introduced, it remains fixed within the opening thus made, pressing gently on its sides, so preventing hæmorrhage, and buttoning as it were, and remaining fixed within the trachea. This tube is now shortened by detaching two-thirds of its length, and receives the disc. All is safe, and the patient breathes through the silver tube.

I believe a trocar has been proposed to affect the same object; but this is a clumsy instrument, and without great care must wound the posterior past of the trachea.

The ordinary mode of performing the operation is, in general, so tedious, as to be inadmissible in hydrophobia or tetanus; it would probably destroy the patient on the principle of *excitation* explained in my recent communication.

[In reference to Dr. Hall's suggestion that tracheotomy should be performed in hydrophobia, Mr. J. TURNER, veterinary surgeon, refers us to a paper in the Lancet for Dec. 9th, 1843, in which he himself made the same suggestion.]

Lancet, Aug 5, p. 151, *Sept.* 2, *&* 16, 1848, *pp.* 283 *&* 325.

28.—*Case of Hydrophobic Mania treated by Chloroform.*—By R. Y. ACKERLEY, Esq., Liverpool.—[A labouring man, thirty years of age, was observed last January to be out of health, low-spirited and irritable; he shortly afterwards complained of giddiness,—had flushing in the face, rambling, and sleeplessness, felt great apprehension and foreboding of something dreadful about to happen, —and spoke especially to having been bitten in the leg by a rabid cat ten or eleven years previously. The delirium, restlessness, and fever, increased, in spite of appropiate treatment; horror of fluids followed, with sullenness, injection of the conjunctivæ, and at last violent mania. On the 20th of January, in consultation with Mr. Bainbrigge, Mr. Ackerley tell us,]

We now came to the determination of trying the chloroform, which put him to sleep in about three minutes; he did not awake again for three-quarters of an hour; when he appeared much more calm, recognised his wife, and kissed and embraced her; deglutition better; the bowels had not acted; pulse ninety. To have four ounces of infusion of senna, and a blister over the scalp: in the evening we found him much quieter: the bowels had acted; passes his urine and stools involuntarily. The effect of the chloroform was so decided in the morning that we resolved to repeat it, which was accordingly done with the same beneficial effect. The cerebral symptoms, however, returned about one in the morning, and at our visit at ten o'clock on the 21st, we found him a perfect maniac; conjunctivæ of both eyes much suffused; dilatation of pupils; skin cool; no unnatural action about the carotids; spasms of the limbs

increased, and extending to the muscles of the spine, producing occasionally a state of opisthotonos. The chloroform was again administered, and he remained very quiet during the day, sleeping at intervals. The chloroform was used again in the evening. The emaciation was very marked, and to a greater extent than we had ever seen it in any other disease of the same duration. He was ordered wine and brandy, with arrowroot and beef-tea.

22nd.—This morning we found him worse again; total deprivation of all his mental faculties. Ordered an ointment of tartar-emetic and croton oil, to be rubbed over the whole extent of the spine. Ice to be applied to the head, and to have the chloroform. In the evening, symptoms somewhat better; chloroform repeated.

23rd.—Has passed a more comfortable night: the conjunctivæ less suffused; countenance more intelligent; tongue becoming moist and less red; pulse ninety-four; bowels constipated; Ordered, one drop of croton oil, every four hours; chloroform repeated.—Evening: appears better in every respect; the bowels have acted. Ordered, muriate of morphia, one grain, to be taken immediately; and chloroform.

24th.—Had several hours sleep, and is more sensible; complains of his hands and feet feeling cold. The ice to be discontinued, and to have hot water to the feet. Ordered, chloric ether, half an ounce, carbonate of ammonia, half a drachm, camphor mixture seven ounces and a half. Mix. An ounce to be taken every three hours. - Evening; better in every respect, except that the pulse has got up to 120; this might be attributed to his having had too many of his friends seeing him. Gave the chloroform, and in fifteen minutes we found the pulse had come down to eighty-eight, repeat the morphia and mixture.

26th.—Has had an excellent night; returning intelligence; pulse ninety-four; skin warm; still passes his urine and stools under him; expression of countenance improving. From this time the improvement was so rapid and continuous that I shall not consider it necessary to describe the symptoms daily. The chloroform was administered occasionally, with tonics and stimulants; and in about a fortnight he went into the country, quite well both in mind and body.

Lancet, July 29, 1848, *p.* 122.

29.—ON TETANUS.

By S. G. Wilmot, Esq., Resident Surgeon to Steevens' Hospital, &c.

[Mr. Wilmot lays down the following propositions:]

1st. That tetanus depends on irritation, directly or indirectly, of the excito-motory system, or true spinal cord, by which it becomes surcharged with motor influence; and that inflammation in or about the cord, or any appreciable lesion, is not an essential condition for the development of the disease.

2nd. That, while we have ample evidence, physiological and practical, that opium is ill-calculated to fulfil the indication in tetanus, namely, to diminish the excitability of the true spinal cord, until our views become improved, and the knowledge of an antitetanic agent ceases to be a *desideratum*, we are not justified in discarding altogether this drug.

3rd. That our grand object in the treatment of tetanus should be, to support the patient's strength by the administration of stimulants and strong nourishment, with a view, as it were, to compensate the vital powers for their great exhaustion consequent upon the expenditure of force by the violent muscular contractions, which in some cases are excessive.

4th. That as the removal of the exciting cause, once the first evidence that irritation has been propagated to the spinal cord becomes manifest, does not in the least degree check the progress of tetanus, or abate the violence of its symptoms, all operations, in traumatic cases, are generally not only unnecessary but injurious.

Dublin Quarterly Journal, August, 1848, *p.* 28.

30.—*Case of Traumatic Tetanus treated by Chloroform.*—By R. L. Baker, Esq., Birmingham.—[On the 23rd of March, a man employed in a brewery, got a portion of one of his fingers torn off by machinery; and a day or two afterwards pain, nausea, and febrile symptoms came on. Early on the morning of the 28th, Mr. Baker tells us:]

I received a very urgent message, stating that he had had no sleep since I saw him, and that he had been dying since two in the morning, and I was requested to meet Dr. Bell Fletcher. At eight o'clock I visited the patient with Dr. Fletcher. We found him perfectly stiff with tetanic spasm. He appeared conscious, but had lost the power of articulation and deglutition. The whole surface of his body was bathed in perspiration; every muscle seemed implicated in the spastic action; indeed, he had all the ordinary symptoms of traumatic tetanus, and we had no hope of his recovering from this condition. We ordered a turpentine enema to be administered immediately, and the (query, tincture of) cannabis sativa to be given in doses of twenty minims every three hours; and thinking it a favourable case for the application of the chloroform, we arranged that I should administer it on my next visit. At two P.M. I again saw him, and found him in the same state in which we left him in the morning. The attendants could not get him to swallow the medicine, and had made ineffectual attempts to give a glyster. Under these circumstances I administered the chloroform on a handkerchief, and in about three minutes the muscles began to relax. The thumb, which had been firmly grasped by the fingers into the palm, became quite easily moved; for a short time he muttered incoherently; then answered two or three questions rationally; and finally sank into a sound sleep, with the muscular system relaxed and free from convulsions. I kept up the

effect of the chloroform for three-quarters of an hour, and left him asleep, having prescribed a blister to be applied to the back of the neck, and two grains of calomel every two hours, to get free action of the bowels. At nine P.M., I again visited him, and learned that an hour after I had left him he awoke, as if from sleep, with the free use of his limbs restored, and asking to be assisted to the night-chair, where he had a copious stool, and entered into rational conversation with those around him. From this time his general health gradually improved; but the finger continued much swollen. Finding, on the 3rd ultimo, that the pain had increased, with slight muscular convulsive twitches, and thinking that the finger might be the cause of irritation—consequently, being fearful of a return of the tetanic symptoms, I determined to remove the finger at once. Not having the chloroform with me, I amputated it without its use; and since its removal there has been no return of the convulsive symptoms, and my patient is doing well.

The tetanus came on five days after the accident, and the finger was amputated on the eleventh day after the original injury, and six days after the successful administration of chloroform.

Lancet, June 3, 1848, *p.* 610.

31.—*Chronic Tetanus treated by Ether Inhalation.*—Dr. I. PARRISH read to the Philadelphia College of Physicians, March 7th, an interesting case of phlegmonous erysipelas, commencing in the finger and extending up the hand and arm. Rigidity of the jaws supervened on the sixth day, followed by shooting pains up the limb to the neck and jaws. The preparations of opium, assafœtida, &c., having failed to make any impression, the inhalation of ether was tried on the seventh day, and it produced a most favourable anodyne effect, causing several hours' refreshing sleep. The inhalation was repeated on the eighth day also with a favourable effect. Convalescence from this time was confirmed, and the patient recovered. —*American Journal of Med. Sciences*, July, 1848.

Medical Gazette, Oct. 20, 1848, *p.* 689.

32.—*Case of Tetanus after Amputation, cured by the Inhalation of Ether.*—By J. G. LANSDOWN, Esq., Surgeon to the Bristol General Hospital.—[The patient was a man 22 years of age, with disease of the foot and ankle, for which amputation was performed at the ankle joint by a modification of Syme's operation. A few days after the operation, slight difficulty in swallowing was experienced, for which an opiate was given.]

Nov. 10th. Ten P.M.; being ten full days from the period of the operation. The difficulty in opening his mouth had much increased; the muscles of the neck were very rigid; pain over the pectoral muscles continued through to the back. At this time I placed half an ounce of ether in the bladder, which he inhaled four minutes; he could then open his mouth much more freely. After waiting half an hour he inhaled again; he then said he felt no pain

nor inconvenience about his face; the muscles of the neck were less rigid, and he could open his mouth more freely. He continued the inhalations of the ether every four hours, and after each could open his mouth to take nourishment; he also took the soap and opium pill.

12th. Head more drawn back: the tongue covered with ulcers from being caught between the teeth; obliged to keep something between them to keep them from closing. He cannot now use the pipe of the bladder, a sponge being substituted; the wound emitting a peculiar discharge, very offensive, thick, and of a dirty yellow colour. The bowels being costive, two drops of croton oil were given, which produced good effect, and which was repeated as occasion required until recovery. To procure lengthened sleep, one grain of morphine was given three times a day.

15th. The spasms have increased in intensity and frequency, occurring every three or four minutes. When the muscles are not under the influence of the ether, he cannot swallow the smallest quantity of fluid, the attempt to do so brings on violent spasms; he appears almost choked, and then dashes the spoon from him, the forehead at the same time being covered with large drops of perspiration The pain from sternum to the back increased; abdominal muscles quite tense.

17th. Has continued nearly the same to this time, as at last date. To-day, while dressing the stump, a large portion of the heel dropped off.

18th. Spasms less.

25th. Has continued to improve, the spasms being fewer, and less severe; the stump granulating freely from the end of the tibia. The treatment has not been altered, but the doses of morphine and croton oil have been varied; morphine to be omitted to-night.

Dec. 1st. Opened his mouth sufficiently wide to put out his tongue, and he kept it out for a short time.

4th. Has had no spasm since last date, but has continued the ether of his own accord, fearing lest he should have a return. Discontinue its use. The stump when he left the hospital was nearly covered by the integument, and was all but well. He left, fearing he might have fever and die there. Throughout the whole case, which continued three weeks, ether was the sheet anchor, producing every time it was used, instant relief; the morphine did its work in quieting the spasms and procuring more permanent sleep; the bowels were always constipated, unless when he took the croton oil; the spasms were frequently so severe that I thought it almost impossible he could live through them.

Lancet, September 16, 1848, *p.* 309.

33.—*Chloroform in Delirium Tremens.*—By S. L. Gill, Esq., Stepney.—Within the last few months, I have several times attended a Mr. T., with delirium tremens, and upon each occasion I have been obliged to give enormous doses of opium to produce relief. Upon the 25th of March, I was again called to attend my patient, whom I found in a state of "furious delirium," no one daring to restrain

him. I gave him an ounce of tincture of opium, which did not produce any perceptible effect. The delirium continuing, I resolved to try the effect of chloroform; but owing to the great excitement under which he laboured, I had the greatest difficulty in getting him to inhale it. I at first used a drachm, with but little effect, which, however, I impute to imperfect inhalation. I then used half a drachm, when he speedily became more tranquil, and fell into a sleep which lasted ten minutes. I then administered a scruple more; his pulse sank rapidly, and he fell into a calm and sound sleep, which lasted for two hours, at the expiration of which time he awoke greatly composed, and so remained for six hours; but on his again becoming fractious, I resorted to opium, under the use of which, and other usual remedies, he is now doing well.

Lancet, June 3, 1848, *p.* 609.

34.—*On the Derangement of Nervous Influence.*—By Dr. Henry Kennedy.—[The following idea, Dr. Kennedy says, has often forced itself on his attention:]

"*There are certain diseased states of the nervous system exactly analogous to those long recognized in the vascular system; and, in many acute diseases, this nervous derangement takes precedence of the vascular derangement*"—that is, as there may exist hyperœmia of the one, so may there be in the other, a state in which the nervous influence, whatever its nature be, is in excess; or, as the blood may be deficient or altered in quality from the healthy standard, so likewise may it be in the nervous system. It is my conviction that the full recognition of this idea or principle, if it can be called such, may tend much to simplify the study of many diseases, and more particularly, may help to clear up some questions concerning the treatment of certain affections, about which a considerable difference of opinion still exists.

Dublin Medical Press, April 19, 1848, *p.* 241.

35.—*Hint on the Treatment of Sciatica and Gonorrhœal Rheumatism.*—By G. Corfe, Esq.—It is frequently observed that the most obstinate forms of sciatica on the one hand, or of lumbago and rheumatic pains of the plantar fascia, commonly termed chronic gonorrhœal rheumatism, on the other, resist all the ordinary forms of treatment; colchicum, guaiacum, turpentine, iodide of potassium, extract of stramonium or of conium, Dover's powder, with warm or with vapour baths, are severally exhibited without affording any appreciable relief, when the introduction of a bougie twice or three times a week will reduce the rheumatic swellings and alleviate, nay, oftentimes completely remove, the disease in question. It has been asserted that this treatment should be adopted only when the rheumatic pains depend upon some stricture along the course of the urethra, and that when this cause of the disease is removed, its effects upon the fibrous tissues of joints generally, or of the sciatic and lumbar nerves especially, are also removed. But such

reasoning is wholly opposed to the practice in question. It is by no means a necessary consequence to gonorrhœal rheumatism of the ankles and plantar fascia, or to an obstinate form of sciatica, that there should exist a urethral stricture; for the counter-irritation produced by the frequent introduction of a bougie, even where no stricture exists, will oftentimes remove, in a few weeks, the most inveterate form of chronic rheumatism which has been under medical treatment for many months. It is undoubtedly true that a neglected stricture near the prostatic portion of the urethra will keep up a severe form of lumbago or of sciatica for months, or even years; but it is equally true that it is by no means an essential feature in the perfect cure of this disease, that there should be any stricture.

I was first taught this valuable point in practice during the years 1825 and 1827, when the gentleman to whom I was apprenticed, Mr. Wm. Coates, late of the 5th Dragoon Guards, served the office of Inspecting and Officiating Surgeon to the recruiting depot in Wiltshire. I then found that very many cases of obstinate pains about the plantar fascia, and of sciatica, which might have been supposed to have arisen from long marching in young recruits, were treated successfully by this surgeon, who had seen twenty-one years of active service, by the use of the bougie. The fact of such patients not suffering any inconvenience in micturition forms the main obstacle to the persevering use of this mode of treatment, since it naturally appears to them quite foreign to the cure that such unpleasant, and apparently misplaced remedial measures should be employed as the frequent introduction of a bougie. The plan of treatment, therefore, can only be carried on effectually under such discipline as that which is found in military and naval service, or in that of public hospitals. The intimate sympathy which exists between a diseased urethra and the nerves upon which the kidneys lie will readily explain the frequent combination of disordered urinary secretion, lumbago, &c., with stricture; and if this latter disease remains neglected by the patient, it is oftentimes the fruitful source of disorganization of the kidneys themselves; so that in the majority of fatal cases of stricture, whether by ruptured urethra, diseased bladder, or in those cases of retention which require that the surgeon should cut down upon the stricture to relieve the distended bladder, it is ordinarily found that the kidneys are far advanced in disease, and partially destroyed by the processes of continuous acute inflammation.

Medical Times, Sept. 9, 1848, *p.* 302.

36.—*Hints on the Diagnosis of Sciatica from Morbus Coxarius.*—By G. Corfe, Esq.—[Mr. Corfe states the following simple method enables us readily to distinguish between sciatica and inflamed or diseased hip-joint, in those cases where difficulty arises.]

Place the thumb of the *right* hand firmly on the great trochanter, and the third finger on the tuberosity of the ischium; then drive

the forefinger into the space that exists midway, and a little above, these two points, and if sciatica is present, the patient will certainly wince. The fingers here describe a triangle, the apex of which, whilst it points towards the sacro-iliac symphisis, also rests upon the precise exit of the nerve from the pelvis, and the base is formed by the line from the trochanter to the ischiatic tuberosity. But in order to ascertain if disease of the hip-joint is present, reverse this triangle, and place the thumb of the *left* hand upon the great trochanter, and the third finger upon the tuber ischii, and let the forefinger be driven into the apex of that triangle, of which the two former fingers describe the base, and it will be found to be immediately over the articular surface of the hip-joint, and which will certainly cause pain if inflammation exists in it. It will be observed that the apex of this triangle looks downwards towards the lesser trochanter.

These directions apply to the detection of the seat of pain on the left side; but, when the right hip is examined, the hands of the operator should be reversed to the above description.

Medical Times, Sept 9, 1848, *p*. 303.

37.—*On the Efficiency of Active Exercise in the Cure of Neuralgia.* —[An anonymous writer in the Lancet states that he got rid of a severe facial neuralgia of six months' duration in the following manner. After all remedies had been tried in vain, he one day, during a severe paroxysm, shut himself up in his room, and commenced a vigorous match of fisti-cuffs with an imaginary opponent. He says,]

After a battle of half an hour I was naturally much fatigued, and in a state of profuse perspiration, but the pain was gone. Next day I recommenced my exertions, on the premonitory symptoms appearing, and prevented the attack; and two or three times since I have had occasion to do the same with equal success, using no other medicine all the while, but a frequent glass of generous wine, to keep me in boxing condition, for this remedy is perhaps incompatible with great bodily weakness.

The truth is, that nervous affections are prevented and removed by a great diversity of counter-irritations, or new and superseding actions in the system. It is absurd to talk of quinine as a specific in ague. Twenty years ago I stopped an ague with which I had been long annoyed, by violent horse exercise, taken about the usual time of attack. I had taken bark and arsenic on former occasions for the same disease, with no greater efficacy.

In conclusion I have to observe, that between facial rheumatism, neuralgia, and certain species of tootache, there is great sameness of character; and I would strongly recommend my remedy of mental and bodily excitement in all three. Should any of the readers of the Lancet be successful in the application of this principle, I should be glad if he would record his success in its

pages. There is, perhaps, nothing very new in the principle. In some medical periodical, the late Dr. Marcet has related a cure he made of severe chronic rheumatism in his own person, by violent and prolonged exercise; and the quick pace about the room of persons affected with toothache, or other sharp pains, would show that this remedy is in some sort instinctive.

Lancet, Aug. 19, 1848, *p.* 209.

38.—*New Remedy for Toothache.*—Mr. James Beatson, of Airdrie, says,—Gum copal, when dissolved in chloroform, forms an excellent compound for stuffing the holes of decayed teeth. I have used it very frequently within the last two weeks, and the benefit which my patients have derived from it has been truly astonishing. The application is simple and easy. I clean out the hole, and moisten a little cotton with the solution; I introduce this into the decayed part, and in every instance the relief has been almost instantaneous. The chloroform removes the pain and the gum copal resists the action of the saliva, and, as the application is so agreeable, those who may labour under this dreadful malady would do well to make a trial of it.

Medical Times, July 1, 1848, *p.* 145.

ORGANS OF RESPIRATION.

39.—GENERAL CONCLUSIONS RESPECTING TUBERCLE.

By Dr. H. Lebert, Bex, Switzerland.

[From a series of elaborate researches upon the subject of tuberculosis, Dr. Lebert draws the following inferences.]

1. Every formation which is pathologically different from any other formation manifests this difference even in its determinate microscopical structure.

2. The invariable elements of tubercle are—molecular granules; hyaline ligamentous or connecting matter, and the tubercle-cells peculiar to tubercle, from 0.005 parts of a millimetre to 0.01 part of a millimetre in diameter, irregular in shape, containing in their substance no *nuclei*, but molecular granules. In water, ether, and weak acids, they undergo almost no change; in the concentrated alkalis, as *liquor ammoniæ causticus* and *aqua potassæ*, they are completely dissolved.

3. The dimensions of the tubercle-cells are liable to manifold variations, which however depend neither on differences in organs nor on differences in ages. They are most easily discovered in yellow crude tubercles.

4. Tubercular *corpuscula* are cells left remaining at a low stage of development.

5. The view that tubercular substance is a modification of purulent matter is most decidedly contradicted by microscopical examination.

6. Tubercular *corpuscula* are distinguished from imperfect *pus*-globules by the spherical shape of the latter and by their larger diameter; from perfect *pus*-globules by the *nuclei* appearing in the latter; lastly, from carcinoma-cells distinctly by this character, that the latter are from two to four times as large, and consist of a cell-membrane, of a large distinct *nucleus*, and often even of *nucleoli*.

7. In the softening process in tubercle the connecting matter is fluid; the *corpuscula* are rounded off; their close juxtaposition ceases; they become expanded, and seem to be large. This, however, is not growth, but incipient disintegration.

8. The purulent matter surrounding softened tubercle never has its origin in the tubercle itself, but uniformly in the parts immediately surrounding it.

9. The microscope is capable in doubtful cases of distinguishing whether the observer has to do with softened tubercle, or with thickened purulent matter, or with a mixture of the two.

10. Purulent matter appears rapidly to cause the disintegration of tubercular *corpuscula*, and therefore to render them not cognizable in their individuality.

11. While irregularity in outline and compressed mutual aggregation indicate the first stage in the development of tubercle-cells, and mutual softening, expansion, and rounding off denote the second stage, so the third stage consists in solution. The minute globes are separated into a semifluid granular mass, and lose their individuality.

12. The induration and the calcareous transformation of tubercle is one mode of natural cure. The peculiar tubercular elements are wasted, and are partly absorbed. In their place are substituted small mineral granules, and sometimes crystals of cholesterine. The process of calcareous transformation is usually attended by deposition of colouring matter. According to the chemical analysis of M. T. Boudet, the chief elements found in these calcareous fragments are chloride of sodium and sulphate of soda. Calcareous salts are only in small amount.

13. In tubercles, we specify, as elements not constantly but occasionally present, melanosis as the most frequent admixture; and next to this, fat, fibres, olive-coloured dark globules, and crystals. We find, as only accidentally mingled with tubercles but by no means belonging to their substance, the products of inflammation, as exudation and suppuration, and the elements of epithelium-fragments in multiplied forms.

14. The seat of tubercle in the lungs is usually the elastic cellular tissue of these organs. These bodies are, however, also found secreted in the pulmonic vesicles, and in the capillary or minute bronchial tubes.

15. The pulmonic tissue around tubercles may be sound; but for the most part it is in the state of congestion or of inflammation.

The latter morbid process is either lobular or diffused over the greater part of an entire lobe.

16. The purulent matter found surrounding tubercles is often not the consequence of gray hepatization, but proceeds from the mucous membrane of the small bronchial tubes, partly destroyed and opening into the tissue of the lungs.

17. Pneumonia around tubercles possesses nothing specific We find in it the same elements ef exudation, aggregation globules, fat-vesicles, purulent *corpuscula*, &c., as in ordinary pneumonia. Tubercular *corpuscula* are found usually not among exudation products.

18. Occasionally there is found around tubercles a peculiar form of chronic inflammation, with yellowish hepatization and with increased consistence in texture. The pulmonic vesicles, the small bronchial tubes, and the pulmonic tissue are filled partly with fibrinous coagula with new fibrous formation, partly with aggregate and purulent globules; and amidst chronic hepatization with few vessels, we find vascular acute lobular pneumonia.

19. The degree of consistence of acutely or chronically inflamed lungs depends on the amount of fibrinous matter, fluid blastema, and globules contained. Much fibrinous matter, with little blastema and few globules, produces induration; much fluid blastema with few globules produces softening. Equal proportions of these different elements produce a middle degree of consistence.

20. The lungs rendered compact in consequence of compression from above by pleuritic effusion, often present nowhere any inflammatory phenomena.

21. The gray semitransparent granulations of the pulmonic tissue contain from the beginning tubercle cells, and are therefore a genuine form of tubercle. Their colouring and transparency is produced partly by the close juxtaposition of the tubercular *corpuscula*, in consequence of uninjured pulmonary fibres, partly by the presence of a large proportion of connecting matter.

22. The gray granulation is not always the termination of the formation of yellow tubercles. The latter is often developed primarily as such.

23. The vascular net-works found around the gray granulations are neither signs of inflammation nor consequences of new formation, but rather effects of the compression of many capillaries by the tubercular deposition and the consequent over-distension of the residual capillary vessels reduced in amount.

24. The notion that gray granulation may be a consequence of inflammation, is contradicted by correct research.

25. The process of ulceration is altogether different from that of suppuration. Thus we find on the mucous membrane of the *bronchi* suppuration without the formation of ulcers, and on the mucous membrane of the intestines, ulcers without suppuration. The last cause of ulceration is effected by inflammation, in consequence of parasitical deposits, occasionally from obliteration of a certain order of capillary vessels produced by causes hitherto unknown.

26. The tubercular ulcer of the lungs is physiologically not different from the tubercular ulcer of the bowels and of the skin.

27. In TUBERCULOSIS, a general ulcerous diathesis is formed, particularly in organs in which tubercles very rarely take place. This is a manifest result of the researches of Louis.

28. The internal fluid layer of the contents of ulcerous cavities of the lungs contains the following elements: 1. tubercular substance, seldom entire, for the most part globules in the process of expansion, or in that of granular dissolution; 2. *pus*-globules, occasionally in smaller amount; 3. puride-globules; 4. aggregation globules; 5. purulent mucus; 6. blood-globules; 7. pulmonary fibres; 8. black colouring matter, or melanotic deposits; 9. epithelial fragments; 10. occasionally crystals; and 11. adipose tissue.

29. Among this thickish fluid are found, for the most part, false membranes, consisting of fibrinous matter enclosing purulent elements.

30. Among the false membranes covering the diseased pulmonic tissue is found a true purulent membrane, consisting of vessels and a fibrous basement membrane enclosing minute globules. This is usually partly destroyed by fresh tubercular eruptions taking place amidst it.

31. This membrane is the result of a healing effort of nature, in order to isolate the ulcerated pulmonic tissue, and thereby to favour its cicatrization.

32. Between the purulent membrane and the pulmonic tissue is often found a layer of newly-formed fibrous tissue.

33. Around the ulcerated cavities deposits of new crude tubercles for the most part take place.

34. The healing of cavities is accomplished, 1st, by the insolating faculty of the purulent membrane, and the contracting circumscription of the cavities; 2d, by deposit of fibrinous matter which fills the cavities, unites with their walls, and thus forms a fibrous cicatrix; and, 3d, by deposition of saline matter in the cavities, and formation of fibrous tissue around them.

35. There are no such formations as *mucus-corpuscula*; what have been described as such are merely *pus-corpuscula* secreted by diseased mucous membranes. Proofs of purulent matter are therefore useless.

36. In the expectoration of phthisical persons are found the following elements: 1. mucus; 2. *pus-corpuscula*, uniformly in larger quantity; these are occasionally found in a shrivelled state, and may then readily occasion error; 3. epithelial fragments in the different forms; 4. granular matter in greater quantity, consisting probably of dissolved tubercular *corpuscula*; 5. small yellow pellicles, portions of false membranes; 6. pulmonary fibres; 7. adipose vesicles; 8. blood-globules, occasionally with fibrinous coagula; 9. aggregation-globules; 10. small infusoria, or vibriones, yet rarely and only accidentally.

37. Proper tubercle-cells are usually not found in the expectoration of phthisical persons. There is, accordingly, no uniform or

certain indication by which to distinguish the expectoration of pulmonary consumption from that of other diseases.

38. Pulmonic fibres in the expectoration denote the presence of ulcerated cavity. Their occurrence is, nevertheless, rather exceptional than constant.

39. The greatest part of the expectoration of phthisical patients proceeds not from cavities, but is secreted by the *bronchi*.

40. The abundant secretion of mucus and purulent matter, often taking place from the *bronchi* in pulmonary consumption, is one of the ways which nature strikes out, in order to prevent greater disturbance in the circulation, which would be a necessary consequence of the imperviousness of one set of capillaries, and the overdistension of the rest.

41. One part of the dissolved tubercles of the ulcerated cavities is mingled with the expectoration, another part is absorbed.

42. The law enunciated by Louis, that, after the age of fifteen years, the lungs contain tubercles, if they are found in other organs, is, on the whole, correct. It may, nevertheless, be modified in this manner, that, provided in any other organ a very considerable deposition of tubercles takes place, for instance, in the liver, the kidneys, the *peritonæum*, the lungs often contain few tubercles.

43. In childhood, tubercles in the cerebral membranes, in the glandular system, and in the peritonæum, are more frequent than in adults.

44. The thickening of the *pleura*, from pulmonary tubercles, has its cause, not in inflammation, but in increased nutrition, since it becomes more vascular, in so far as it receives a portion of the pulmonary blood, and therefore becomes a supplemental organ to the circulation through the lungs, and at the same time, by agglutination with the walls of the chest, enlarges the anastatic communications with the large circulation.

45. From embryological and pathological researches, it results that neither around tubercles, nor in the false membranes of the pleura, are new vessels formed independent of the general circulation. Uniformly, new vessels are formed in diseases in the centrifugal direction from the large circulation.

46. The apparent conversion of false membranes into cartilaginous substance depends only on the fibrousness of compression without secretion of proper cartilaginous elements. In like manner, the so-named ossification of false membranes consists only in amorphous deposition of mineral formations.

47. The three chief forms of glandular tubercles are those of the superficial or subcutaneous glands, the bronchial glands, and the mesenteric glands. The last possess least tendency to softening.

48. Tubercular matter is, in the glands throughout, the same as in other organs.

49. The existence of a sensible demonstrable scrofulous matter we cannot admit. That which is regarded as such is either the consequence of ordinary inflammation or suppuration, under the

influence, no doubt, of a dyscrysial element, yet without peculiar matter, or of inflammation and suppuration, attended by tubercular deposition,

50. Tuberculosis is, in the osseous system, a much rarer disease than observers are disposed at present to allow. Very frequently concrete purulent matter and tubercular matter are in this case confounded with each other. In doubtful cases the microscope alone can establish the diagnosis.

51. From actually scrofulous diseases, which, for the most part, become known by inflammation-products and suppuration, tubercular diseases, on the one side, are to be distinguished, and on the other, chronic idiopathic inflammation of the eyes, of the skin, of the glands, of the bones, of the joints. The last category often in children is alternated with *scrofulosis*.

52. In short, accurate diagnosis and definite conceptions of *Scrofulosis* is a desideratum daily more urgently demanded in modern medical practice.

53. The gray granulations in the cerebral membranes, particularly the *pia mater*, show distinctly tubercular *corpuscula* between the fibres of the serous membrane. They further appear in the brain frequently with yellow miliary tubercles, with tubercular infiltration, and also along with large tubercles.

54. In the liver tubercles appear occasionally in very considerable masses, and even with true cavities. These cases are readily confounded with cancer, so far as the medullary fungus of the liver, examined when converted into softening and disintegration, has often an appearance very similar to tubercular deposition.

55. Besides fatty deposition in the liver, fatty degeneration in the heart occasionally takes place in phthisis; consequently a tendency to the deposition of fat in internal organs, while it undergoes wasting in most parts, particularly the external, forms a pathological character of tubercular and other diseases.

56. The kidneys may also be almost quite filled with tubercular deposition. In cases of this class, few tubercles are found in the lungs.

57. In tubercles of the *peritonæum*, we find among the tubercular *corpuscula* many fibres of serous membrane. Tubercles of the *peritonæum* are little disposed to softening. They are, for the most part, accompanied by considerable deposition of colouring matter.

58. *Tuberculosis* of the peritonæum occasionally causes perforation of the intestine, which is for the most part fatal. Yet, in instances of the greatest rarity, by means of the formation of an artificial anus, the preservation of life is still permitted.

59. The consistence of crude intestinal tubercles is normally less firm than that of other organs. In the tubercular ulcers of the intestines no purulent matter is found.

60. The microscopical elements of tubercular intestinal ulcers are, besides the disintegrated tubercle-cells;—cylinder-epithelial fragments, granular disintegrated mucous membrane, and remains of fibres and *fasciculi* of the muscular coat. The new epithelial cells should not be confounded with *pus-corpuscula*.

61. On the morbid intestinal mucous membrane of phthisical persons, we find occasionally polypiform, melanotic, and tubercular excrescences.

62. Tubercles are found, in very rare cases, deposited between the walls of the arteries:—a fact most important in favour of the excretion of tubercles from the blood.

63. In the *pericardium* and in the heart tubercles are found. There are formed, in that case, very extensive adhesions and vascular anastomoses, between the branches of the coronary artery and those of the surface of the lungs;—a remarkable communication between the vessels of the large and the small circulation.

64 Tubercles in the thoracic organs, as well as those in the abdominal organs, may open passages externally, and thus form pulmonary air *fistulæ*, as well as intestinal *fistulæ*.

65. Tubercles and carcinoma do not mutually exclude each other, and therefore do not arrest each other's progress. Both morbid processes may, at the same time, run their several stages of development in the same individual.

Edinburgh Medical and Surgical Journal, July 1, 1848, *p.* 139.

40.—*On the Use of Trisnitrate of Bismuth in the Diarrhœa of Phthisis.*—By Dr. Theophilus Thompson, F.R.S. &c.—[This medicine has frequently been found useful in the diarrhœa of phthisis. Dr. Thompson has lately given it in a number of cases, and with excellent results.]

The dose administered was about five grains, three or four times daily, usually combined with a little magnesia and gum arabic. Dr. Thompson has referred to various authors who have written respecting the properties of bismuth, but has not been able to collect from them any evidence of its powers in the phthisical variety of diarrhœa, but he entertains a strong conviction of its peculiar appropriateness to this affection, and has obtained important confirmation of his experience in a recent communication from Dr. Lombard, of Geneva.

Medical Gazette, July 21, 1848, *p.* 121.

41.—*On the Use of Cod Liver Oil.*—By Dr. C. J. B. Williams.—[Dr. Williams has a very favourable opinion of the remedial value of cod-liver oil:]

He considers that fixed oils in general have a solvent power on the fat of tubercle, which may enable them to remove the deposit, if carried into the circulation in sufficient amount; and that the superiority of fish-oils especially depends upon their being more permanently fluid, and less liable to become rancid. He lays great stress on the purity of the oil, as allowing a sufficient quantity to be ingested; and altogether dissents from the opinion of those, who think that the less pure forms of it are more efficacious. Where it can be borne in sufficient doses,—

"It increases rather than impairs the appetite; and, if continued

for some weeks or even months, promotes in a marked degree the function of nutrition, increasing the strength as well as the flesh, and giving increment to all the textures. Nor is this surprising when we consider that the nuclei or rudimental molecules of all structures appear to consist of fat, which the oil, in its highly divisible state supplies and renews in the manner most conducive to active and healthy nutrition. Its peculiar fluidity and little proneness to change also enable it to pervade all structures, and to penetrate even into imperfectly organized deposits, and by softening their concrete fatty molecules, and rendering more permeable and supple their whole mass, brings them more under the influence of the adjoining living parts, through the circulation in which either their vitality and nutrition are improved and maintained, or if incapable of improvement they are gradually dissolved and absorbed away.

Such appears to me the mode of operation of the cod-liver oil, assuredly the most efficacious of all medicinal agents in the treatment of cacoplastic and aplastic deposits, and one which, after two years' constant experience in its use, is still frequently surprising me by the wonders that it occasionally works even in aggravated and advanced cases of scrofula, mesenteric disease, pulmonary consumption, chronic pneumonia and pleurisy, and chronic rheumatism.

But no remedy, however beneficial, should lead us to neglect attention to those general and hygienic measures by which the constitutional health is promoted and sustained; or, in other words, the great functions of circulation, respiration, digestion, absorption, and excretion are promoted."

British and Foreign Medico-Chirurgical Review, July, 1848, *p.* 150.

ORGANS OF DIGESTION.

42.—ON THE TREATMENT OF APHTHA.

By Dr. C. West.

[Speaking of that form of aphtha which depends upon impaired nutrition of the system generally, and often arises as a consequence of artificial feeding, Dr. West says:]

One point of considerable moment, and to which less care than it deserves is usually paid, is the removing from the mouth, after each time the infant is fed, all remains of the milk or other food which it has taken. For this purpose, whenever the least sign of thrush appears in an infant, the mouth should be carefully wiped out with a piece of soft rag, dipped in a little warm water, every time after food has been given. Supposing the attack to be but slight, this precaution will of itself suffice in many instances to remove all traces of the affection in two or three days. If, however, there be

much redness of the mucous membrane of the mouth, or if the aphthous spots be numerous, some medicated topical application is useful. Various detergents have been recommended, among which the mel boracis, and a mixture of the Armenian bole, with honey are very frequently employed. An objection, however, has been raised to any application into the composition of which honey or other saccharine matters enter, on the ground that the tendency of those substances to pass into a state of fermentation will make them favour rather than prevent the formation of confervæ in the interior of the mouth. Without determining the precise value of this objection, it will yet, I think, be found that water is the best menstruum for any local application to the mouth. It is my custom to dissolve ℈j.—ʒss. of borax in ℥j. of water, and to direct that after the mouth has been carefully cleansed with warm water, the lotion should be applied to it on a piece of lint or soft linen. In the milder forms of the affection, this borax lotion usually answers every purpose. Should it however, appear insufficient, a solution of gr. v. of the nitrate of silver in ℥j. of distilled water, may be employed in the same way twice a day, while at other times the solution of borax may be used in the manner just directed.

Medical Gazette, May 19, 1848, *p.* 837.

43.—*On Ulcerative Stomatitis or Noma.*—By Dr. C. West.—[By this name, Dr. West describes an affection of the mouth, distinct from follicular or aphthous stomatitis on the one hand, and from cancrum oris or gangrenous stomatitis on the other. It attacks the gums, and destroys them extensively by a process, not of gangrene, but of ulceration. It occurs chiefly in children who have had deficient food and have lived in damp, unhealthy places: but is not preceded by any special derangement of the general system. The symptoms are as follows:]

On opening the mouth, the gums are seen to be red, swollen, and spongy, and their edge is covered with a dirty white or greyish pultaceous deposit, on removing which their surface is exposed, raw and bleeding. At first only the front of the gum is thus affected; but as the disease advances, it creeps round between the teeth to their posterior surface, and then, destroying the gum both in front and behind them, leaves them denuded, and very loose in their sockets, but it is not often that they actually fall out. The gums of the incisor teeth are usually first affected; those of the lower jaw more frequently and more extensively than those of the upper; but if the disease be severe, the gums at the side of the mouth become likewise involved, though it is seldom that the two sides suffer equally. Sometimes aphthous ulcers, like those of follicular stomatitis, are seen on the inside of the mouth in connection with this state of the gums; but oftener it exists alone. On those parts of the lips and cheeks, however, which are opposite to, and consequently in contact with, the ulcerated gums, irregular ulcerations form, which are covered with a pultaceous pseudo-membranous

deposit, similar to that which exists on the gums themselves. Sometimes, too, deposits of false membrane take place on other parts of the inside of the mouth, the surface beneath being red and spongy, and bleeding, though not distinctly ulcerated. If the disease be severe and long-continued, the tongue assumes a sodden appearance, and is indented by the teeth, and the cheek on one or other side is somewhat swollen, while the saliva, though rather less abundantly secreted than at the commencement of the affection, continues horribly fœtid, and is often streaked with blood, the gums themselves bleeding on the slightest touch. But even if left alone, the affection usually subsides in the course of time, though it may continue almost stationary for days or weeks together, and this notwithstanding that the general health is tolerably good. It would be too much to say, that this unhealthy ulceration never degenerates into gangrene; but though a very large number of cases of ulcerative stomatitis have come under my notice, I have seen only one instance in which it was succeeded by true gangrene of the mouth. When recovery has commenced, the disease ceases to spread; the drivelling of fœtid saliva diminishes; the white pultaceous deposit on the gums, or on the ulcerations of the cheek or lips, becomes less abundant; the ulcers themselves grow less; and finally, the gums become firm, and their edges of a bright red, though still for a long time shewing a disposition to become once more the seat of the ulcerative process, and continuing for a still longer time to cover the teeth but very imperfectly.

Various internal remedies and local applications have been at different times recommended for *the cure of this affection.* Tonics have been much employed, and the supposed analogy between this state of the gums and that which exists in scurvy has led practitioners to give the preference to remedies supposed to be possessed of antiscorbutic properties. Lotions of alum, or burnt alum in substance, or the chloride of lime in powder, have all been used locally with more or less benefit. It was my custom also to prescribe these remedies in cases of ulcerative stomatitis; but since the chlorate of potash was introduced to the notice of the profession by Dr. Hunt, I have learnt to rely upon it almost exclusively. It appears, indeed, almost to deserve the name of a specific in this affection; for a marked improvement seldom fails to be observed in the patient's condition after it has been administered for two or three days, and in a week or ten days the cure is generally complete. Three grains every four hours, dissolved in water, and sweetened, is a sufficient dose for a child three years old, and five grains every four hours is the largest quantity that I have administered to a child eight or nine. If the bowels be constipated, a purgative should be previously administered; but there seems to be no form nor any stage of the affection in which the chlorate of potash is not useful. The diet should be light but nutritious, and quinine and other tonics are sometimes serviceable if the child's health should continue feeble after the local malady has been cured.

Medical Gazette, June 2, 1848, *p.* 924.

44.—*On Gangrenous Stomatitis, or Cancrum Oris.*—By Dr. C. West.—Ulcerative stomatitis is an affection of such frequent occurrence that many instances of it come under my notice every year, especially during the damp autumnal months; while it is attended with so little danger, that the only case in which I have known it prove fatal was one in which gangrene of the mouth supervened upon it. *Gangrenous stomatitis*, on the other hand, is a disease so rare that I have only five times had the opportunity of witnessing it: but so fatal, that in four out of these five cases the patients died.

[After describing at some length the symptoms of cancrum oris, Dr. West proceeds to the treatment. He says:]

The arrest of the sloughing is the one point to which in the *treatment* of this affection the attention of all practitioners has been directed. The small amount of success which has attended their efforts is partly attributable to the circumstance that the affection has frequently been overlooked, until it has already made considerable progress; in part also to the fact that when recognized, the local remedies employed in order to check the gangrene have either been too mild, or have been applied with too timorous a hand. Unfortunately, too, there is considerable difficulty in applying any caustic effectually to the interior of the mouth,—for not only does the tense and swollen condition of the cheek prevent our obtaining easy access to the gangrenous parts, but the child naturally resists an operation which cannot but occasion it most severe pain. Ineffectual cauterization, however, is useless, or worse than useless; and though every endeavour should be made to prevent the needless destruction of healthy parts, yet of the two evils, that of doing too much is unquestionably less than that of doing too little. It is of importance, moreover, not only that the cauterization should be done effectually, but also that it should be practised early. M. Baron, indeed, speaks of incising the slough in the cheek, and then applying the actual cautery to the part: but I am not aware of any instance in which this suggestion has been acted on with a good result. When once the mortification has extended through the substance of the cheek, the chances of arresting its progress must be very few. As the sloughing advances from within outwards, it is to the interior of the mouth that our remedies must be applied, and since the advance of the disease is too rapid to allow of our trying mild means at first, and afterwards resorting, if necessary, to such as are more powerful, we must employ an agent sufficiently energetic at once to arrest its progress. Various caustics have been recommended for this purpose, but none appear to be so well fitted to accomplish it as the strong hydrochloric or nitric acid. I am accustomed to employ the latter, applying it by means of a bit of sponge, or of soft lint or tow, fastened to a quill, while I endeavour, by means of a spoon or spatula, to guard the tongue, and other healthy parts, as far as possible, from the action of the acid. In the only case that I saw recover, the arrest of the disease

appeared to be entirely owing to this agent, and though the alveolar processes of the left side of the lower jaw, from the first molar tooth backwards, died, and exfoliated apparently from having been destroyed by the acid, yet it must be owned that life was cheaply saved even at that cost. Some increase of the swelling of the cheek almost invariably follows the application of this agent—a circumstance which may at first occasion unfounded apprehension lest the disease be worse. Twelve hours, however, must not be allowed to elapse, without the mouth being carefully examined, in order to ascertain whether the disease has really been checked, or whether there is any appearance of mortification in the parts beyond the yellow eschar left by the first application of the acid. The cauterization may now be repeated, if it appears necessary, and even though the disease had seemed completely checked; yet reliance must not be placed on the improvement continuing, but the mouth must be examined every twelve hours, for fear the mortification should spread unobserved. During the whole progress of the case the mouth must be syringed frequently with warm water, or with camomile tea mixed with a small quantity of the solution of chloride of lime, in order to free it from the putrid matters that collect within it, and to diminish as much as possible their offensive odour. Should the case go on well, the frequent repetition of the strong acid will be unnecessary, but the surface may still require its application in a diluted form, or it may suffice to syringe the mouth frequently with a chloride of lime lotion, or to apply the chloride in powder once or twice a day, according to the suggestion of MM. Rilliet and Barthez. In the last two cases of this affection that came under my notice, I likewise employed the chlorate of potash internally, as recommended by Dr. Hunt, but it did not appear to exert any influence over it; and valuable though the remedy is in ulcerative stomatitis, it would, I think, be merely trifling with your patient's chances of recovery to trust to it in true gangrene of the mouth.

During the whole course of treatment you have another indication to fulfil—namely, to support your patient's strength by nutritious diet, and by the employment of wine and other stimulants, and the administration of quinine, or of the extract or tincture of bark, or whatever form of tonic might seem best suited to the peculiarities of the case.

In conclusion let me remind you, that during the whole progress of the case your prognosis must be regulated by the state of the local disease, rather than by the urgency of the general symptoms. So long as the sloughing is unchecked, the affection is tending rapidly to a fatal issue, and this even though the pulse be not very feeble, though the appetite be good, and the child still retain some show of cheerfulness.

Medical Gazette, June 2, 1848, *p.* 925.

45.—ON GASTRODYNIA.

By Dr. Robert Dick.

[Dr. Dick observes that the term gastrodynia, as also the terms gastralgia and cardialgia, are sometimes used to imply uneasiness in the epicardiac region, when the stomach, if affected at all, is so only in a secondary or subordinate manner. He says,]

There can be little doubt that in not a few cases of epigastric uneasiness the seat of pain is not in the stomach, but probably in the splanchnic nerve, while even yet in the thorax, or where immediately after, having passed the crura of the diaphragm, it forms the semilunar ganglion: still more frequently there is reason to believe that the solar plexus, or the left hepatic plexus, is the seat of pain supposed stomachic. On other occasions the upper part of the pancreas, or the intestinal end of the duodenum, are the probable seats.

In other cases, in which the pain is unquestionably in the stomach, and owing to the presence there of irritating secretions, it may yet happen, and happens, indeed, not rarely, that these secretions are not of stomachic origin, but regurgitations from the duodenum, liver, or pancreas—nay, it is not unlikely, or, at least, impossible, from the first or upper part of the jejunum. Andral mentions cases of a father and son, with severe cardialgia, accompanied with vomiting, caused by fatal disease of the pancreas.

Such being the various possible origins of cardialgia and gastrodynia, it is evident that the treatment must be correspondingly varied. If there is heartburn, with sour eructations, we try at first a simple antacid, as ten or fifteen grains of carbonate of potass, in, if you will, two or three ounces of some aromatic water. If this is not sufficient, and an alterative alkali is indicated, the carbonate of magnesia may be tried. If the tongue is suburral, and its edges red; the breath heavy, hot, and fœtid; the bowels irregular; the urine turbid and high-coloured; and the stomachic uneasiness rather dull than acute, but constant—it is presumed that the gastric mucous surface, probably also the duodenal and jejunal mucous membrane, is in the same condition as that of the tongue, —sub-inflammatorily congested. In this case, if the patient is young and plethoric, the treatment is simple. The compound infusion of senna, with the sulphates of magnesia or potash, until the tongue cleans, and the stomach-pain vanishes, are all that is necessary.

The same symptoms may, however, occur in arthritic, and rheumatic subjects and persons considerably past middle life. Here a more cautious treatment is required. The neutral salts are to be avoided. Extract of rhubarb and blue pill must gently correct the secretions, and promote excretion, and the infusion of senna must be combined with that of rhubarb and with tincture of cardamoms, or the compound spirit of horse-radish. To the extract of rhubarb and blue pill I have often seen advantage from the addition of

extract of colchicum, in such proportions as two or three grains of rhubarb plus a grain and a half of blue pill and extract of colchicum respectively.

If the cardialgia arises from the ingurgitation of bile, as evinced by extreme nausea, bitterness of taste in the mouth, and bilious retchings, we ought to commence with the induction of vomiting, and thereafter give draughts, composed of decoction or infusion of taraxacum, with sulphate of magnesia. This last measure is, however, only to be resorted to if the stools are pale and inefficient, and the hepatic region full and tender ; for in this case we must presume that the hepatic veins are congested, and require to be stimulated to evacuate their contents, But if, along with bilious vomiting, there are bilious stools, the treatment, after the emetic, should consist of little else than diluents. If the bile be freely and spontaneously discharging itself, there is no use in exasperating the obviously already excited liver by purgatives.

If the cardialgia is flatulent, draughts or a mixture, composed of four or six drachms of the compound tincture of ammonia, and of the tincture of assafœtida, respectively, with six or eight ounces of the compound infusion of senna, will dispel the cause.

The cardialgia of pregnancy has no cure but parturition. That which is owing to interrupted menses or suppressed hæmorrhoids, long established, must be treated by leeches applied to the anus or groins, by hot pediluvia, and by sufficient but prudent purging. The cardialgia of old subjects, if plainly traceable to suppressed hæmorrhoids, must be treated promptly. Aloes must be given in the purgative, and stimulant suppositories inserted.

Perhaps the two last kinds of cardialgia ought more properly to be considered as cases of gastrodynia or gastralgia, to a brief notice of which we now proceed.

We have stated (arbitrarily it may be, yet convenient for practice), the distinction between cardialgia on the one hand and gastrodynia or gastralgia on the other, to consist in the former being attended with more or less inflammatory irritation of the mucous membrane and deranged secretions ; the latter to consist simply of a neuralgia, in which the tongue, secretions, and excretions, need not be, and very frequently are not, deranged. In short, we suppose gastrodynia to be a local idiopathic neuralgia, the only symptom of which is pain, and for which there is no appreciable or very probable cause.

In such cases the treatment must depend on the temperament, sex, and age of the patient. For example, in exsanguine subjects we would give bark and iron ; or iron and some aromatic powder, without sedatives or narcotics : in plethoric subjects, especially if young, we would order restricted diet and drink ; seidlitz powders largely diluted ; or, if accessible, seltzer or Vichy water. In cases neither decidedly exsanguine or the reverse, we would order sedatives or narcotics, now with, and now without, the addition of vegetable or mineral tonics. Thus one case might require the various preparations of opium, or hyoscyamus, or conium, or

aconite alone, or belladonna, stramonium, cannabis indica, or hydrocyanic acid; another would require one or other of these, combined it might be, with quinine or chiretta; a third might require the narcotics or sedatives in conjunction with metallic tonics, as nitrate or oxide of silver; sulphate or carbonate of iron; sulphate or oxide of zinc; sulphate or ammonia-sulphate of copper; the trisnitrate of bismuth, or the cyanuret of gold.

I have very often met with cases in which gastrodynia was due to smouldering gout; a fit of which at once accounted for and relieved the stomachic neuralgia. In cases in which we suspect the arthritic diathesis, the cautious administration of extract of colchicum, along with extract of rhubarb and blue pill, of which combination-doses of five grains are taken twice or thrice a day, will often relieve the gastrodynia, and it is to be presumed, avert an attack of gout, the *first* appearance of which is always, if possible, to be prevented, though after it *has* appeared, it is sometimes prudent or necessary to invite its attack.

Lancet, June 10, 1848, *p.* 632.

46.—*On the Employment of Nux Vomica in Habitual Constipation.* —By E. Boult, Esq., Assistant Surgeon to the Bath Eye Hospital. —[Observing a recommendation of the extract of nux vomica, in habitual costiveness, Mr. Boult was led to give the alcoholic extract in doses of half a grain thrice a day, to patients of costive habit, with but slight effect. He says,]

I was then led to add the same quantity of the extract (half a grain) to a pill containing aloes, rhubarb, and scammony, and was surprised at the result. I found that this drug has the power of increasing very sensibly the activity of purgative medicines. I ascertained that an aperient scarcely sufficient by itself to produce a single evacuation, when combined with this extract, caused active purgation. The dose must be varied according to the patient's idiosyncracy, but, generally speaking, a pill, containing three quarters of a grain of Barbadoes aloes, three quarters of a grain of extract of rhubarb, and half a grain of the extract of nux vomica, (Pharmacopœia Edinensis,) if taken at bed-time, will produce one, or, perhaps, two full evacuations the following morning. The addition of a single grain of calomel to this pill will cause two or three *bilious* motions, thus shewing that the drug possesses not only the property of stimulating the muscular fibres of the bowel, but also the power of increasing the activity of medicines that affect the secretions.

Dr. Christison says, speaking of strychnine, that "it is not a cumulative poison, like mercury or digitalis; on the other hand, its activity does not diminish, like that of opium, under the influence of habit." The first of these assertions may be questioned, the second would appear to be true. I have prescribed the pills already mentioned nightly for months together, and at the end of the time the effect has been produced as certainly as at first, and no bad consequences have arisen, no disposition to hæmorrhoids has been set up,

and all tendency to cumulation has been carried off with the evacuations; they are indeed remarkably comfortable in their mode of operation, and so far from injuring the tone of the digestive apparatus, I think it will be found that when the medicine is discontinued, the disposition to costiveness will be found lessened. It would be interesting to ascertain how far the exhibition of nux vomica can modify the effect of medicines of a different kind; I have occasionally employed it in combination with quinine, but I am not prepared to say what extent of modification or increased activity has resulted.

There is nothing novel in the combination of tonics with purgatives, which is especially indicated for children of atonic habits. By this means the operation of the purgative is rendered more active, and more persistent if the medicine be continued. Mastich, we know has the property of increasing the powers of aloes, when given in combination; this is said by Pereira and others to be the result of a more minute division of the aloetic particles, which the mastich favours; but I have seen no combination produce anything like those marked effects which have been mentioned as resulting from the employment of nux vomica.

There is an observation to be made with regard to the employment of this medicine, in order to prevent disappointment to those using it. It is essential that the extract should be *good.* Alcoholic extracts are troublesome and expensive to make; this preparation is particularly so, and consequently the common article of commerce is not always to be depended upon.

Provincial Medical and Surgical Journal, May 17, 1848, *p.* 260.

47.—ON SOME FORMS OF DIARRHŒA.

By Dr J. F. Duncan, Assistant Physician to Mercer's Hospital, Dublin.

[After mentioning the varieties of diarrhœa, Dr. Duncan refers particularly to that form of the complaint which is attended with tenesmus and frequent inclination to go to stool, rather than great discharges, The disease being protracted, loss of health and spirits, anxiety, sleeplessness, and hectic supervene. Dr. Duncan observes:]

The whole of this train of symptoms may depend upon some irritation within the rectum, a small ulcer or a bleeding pile whose presence is scarcely recognized by the patient himself, and of which, perhaps, he has never been questioned by his medical attendant. When the exciting cause has been discovered, the treatment is not difficult, and it is astonishing how soon, under such circumstances, the diarrhœa is arrested, and the patient's health and spirits re-established. The occurrence of diarrhœa from such a cause can be best understood by a consideration of the properties of mucous

membranes in general. Let us take the intestinal tube as an example. Intended as this naturally is, for the constant transmission of substances of very different materials and action, nature has wisely guarded the mucous membrane in a state of health with an insensibility to the stimulating effect of whatever is passing over it at the time. Were it not so, the act of digestion would be attended with continual pain. To compensate in some measure for this want of feeling which might at times be attended with disadvantage, and to give warning whenever matters are in the tube, whose presence is attended with danger or inconvenience, there has been substituted a curious property whereby these impressions become matters of sensation at the *orifices* of the tube. In this way we explain the itching at the anus which results from the presence of ascarides in the rectum; the habit of picking at the nose in children afflicted with tænia; the desire to go to stool when the bowels are distended with fæces, &c. Even the inferences which we are in the habit of drawing from an examination of the tongue seem to be founded upon this principle, that the portion of the alimentary canal which is obvious to the senses, by a peculiar sympathy with parts that are remote, reflects the varying changes that are taking place there. Nor is this confined to the mucous membrane of the digestive tube. In the genito-urinary system we find a calculus in the bladder producing irritation at the orifice of the urethra, and the act of coughing is produced in the lungs from a similar irritation within the bronchial tubes.

A full consideration of the subject, then, leads at once to the conclusion that irritation within the rectum, like the irritation in the gums produced by dentition, excites an extensive sympathy throughout the entire tube, and naturally leads to diarrhœa as one of its occasional consequences. In every case, therefore, of protracted diarrhœa, in which a careful examination of a patient's state fails to detect an adequate cause for the disease eleswhere, the attention of the practitioner should be directed to the rectum, with a view to ascertain its real state and remove any local irritation that may exist in it.

[There is nothing of more consequence when we treat a case of diarrhœa, than examination of the stools: and one of the most important points to be ascertained by the examination, is the presence or absence of bile in the dejections. If the evacuations are bilious, opium may be given with safety, and will indeed form an essential part of the treatment. Dr. Duncan thinks that opium acts in these cases by diminishing the secretions which flow into the canal, rather than by lessening the peristaltic action of the bowels itself. And it is on account of this property, that of diminishing the secretions, that opium will be injurious if given when there is a deficiency of bile in the stools. Dr. Duncan says,]

This leads me to notice the propriety of using strychnine in those cases which present the features I have just alluded to—of absence or deficiency of bile in the evacuations. Of course I do not

allude to this remedy as appropriate to the acute period of the attack. Most, if not all, of these cases commence as ordinary dysentery, and require to be treated as such by bleeding, leeching, mercurial preparations, &c.; but after the febrile stage has passed away, you will find the diarrhœa remaining, with whitish stools, general relaxation, prostration of strength, &c.; and here you will find strychnine an admirable remedy. It was first introduced to public notice in this capacity by Dr. Bardsley of Manchester, in his Hospital Facts and Observations, in 1817; and subsequently you will find a case detailed by Dr. Graves, in the third volume of the Dublin Hospital Reports, precisely in point. It began as ordinary dysentery, and degenerated into chronic diarrhœa, with white or chylous evacuations, which yielded to strychnine, after having resisted a variety of other agents. But neither of these gentlemen appear to me to have explained the precise cases to which the remedy is suited, nor the principles upon which it acts. In whatever point of view you regard it, strychnine is the direct antagonist to opium. If opium numbs the sensibility, strychnine exalts it; if opium produces sleep, strychnine excites to wakefulness; if opium impairs muscular contractility, strychnine induces spasms; if opium arrests secretion, strychnine promotes it. The augmented sensibility that results from strychnine is shown distinctly by the susceptibility to external impressions that patients under its influence manifest; the slightest motion of his person, the shaking of the floor from the mere act of crossing the room, the agitation of the air in the chamber by raising the bed-clothes, are all sufficient to throw his whole frame into violent convulsions at such a time. But it is especially from its effect in promoting secretion that it deserves our attention at present. I do not know that this property has been generally ascribed to it, but I can state that in two cases of chronic diarrhœa of the kind described that I had under my care in this hospital last summer, and which recovered—one perfectly, and the other for a time, till a fresh exposure to cold induced dropsy, under which he was labouring at the time I resigned charge of the wards—the change in the character of the evacuations was one of the earliest effects produced. From being white they became feculent, consistent, and full of bile; and whenever in such a case this change occurs, depend upon it you have discovered the true method of cure. Until feculent discharges are procured, the morbid state cannot be considered at an end, even though the patient's sufferings are mitigated, and the unnatural quency of calls to stool removed. That the action of strychnine is to be explained in the manner now pointed out, and not, as many suppose, by its inducing a spasm of the muscular fibres of the alimentary canal, which interferes with their action, appears plain both from the fact that the bowels in the cases referred to continued open, though the number of evacuations gradually diminished, and from the circumstance that no evidence of spastic action in any other part of the muscular system could be detected.

Dublin Medical Press, May 3, 1848, *p.* 273.

48.—*Cases of Diarrhœa Treated by Muriate of Barytes.*—By Dr. A. Walsh.—[Dr. Walsh relates several cases of dysentery in the chronic stage treated by muriate of barytes. We select one: that of a man, 22 years old, who had evacuations every ten or fifteen minutes, attended with great pain, thirst, dry tongue, and quick pulse. He gave the following]

History.—Said he was seized with fever in July, 1847. He relapsed twice, and after last relapse he was attacked with bowel complaint, for which he was under every variety of treatment in hospital without benefit, and was discharged. I ordered wine and arrow-root, with the following medicine:—

Muriate barytes, one grain; muriate morphia, three grains, made into twelve pills, one to be taken three times each day.

Monday, 11th: three days since first report. His bowels were affected only once during the night, three times in the morning, and of a more natural consistence; the pain much relieved, but still caused by wind in his bowels; tongue moist; thirst much abated; sleeps better; says he is greatly relieved.

Continue the pills as before; wine and arrow-root.

Saturday, five days later. Bowels were moved once this morning, once in the night, and once before going to bed; no pain before or after motion, and what passed was nearly natural; pulse 96, soft; tongue moist; says that he is much stronger.

Continue pills as before; wine and arrow-root.

Wednesday, 20th: four days later. Bowels were quite regular from Sunday till last night, when he took a large drink of cold spring water, which acted on him as a strong purgative; his bowels were affected eight times during the night, but not at all in the morning.

Repeat pills as before.

I did not see this patient from last report until Nov. 17th, when he came into my study, and he was so altered for the better that I did not recognize him; he said he continued quite well from the last time I saw him, but that his eyes had got weak, and hindered him from working.

Dublin Medical Press, May 24, 1848, p. 322.

49.—*On the Use of Persesqui-nitrate of Iron in Diarrhœa.*—By Wm. Kerr, Esq.—[Mr. Kerr states that the persesqui-nitrate of iron is a remedy of great power in most cases of chronic diarrhœa, and in this way likely to be useful as a means of preventing cholera. He says:]

After an experience of eighteen years, I can confidently recommend the persesqui-nitrate of iron as capable of curing most cases of chronic diarrhœa. The instances which do not yield to it are those where there is reason to believe ulceration of the mucous membrane exists. It is therefore generally inapplicable in chronic dysentery, or the diarrhœa of phthisis, which, instead of checking, it aggravates. There are besides some other cases not reducible

under any general rule, which are not improved by the persesqui-nitrate of iron; but I am satisfied that the great majority of cases unaccompanied by ulceration, are curable by this medicine. If my readers take the trouble of examining the original papers, they will find a considerable number of cases cured by it, and if they prescribe it to their patients, I have no doubt that they will soon have many proofs in their own experience.

Dr. Graves states that he has lately used the persesqui-nitrate of iron with very considerable success. He proceeds to say, that "you will be consulted by females of a delicate and weakly habit, who frequently exhibit symptoms of nervous derangement, such as palpitations, sleeplessness, and headache, who are easily excited or alarmed, have a tendency to emaciation and paleness, and have little or no appetite. Combined with these general symptoms, you find that they have been labouring under diarrhœa for weeks, and even months, and that this, with other causes of debility, has rendered their condition extremely uncomfortable. You will also be informed by the patient that she has tried many remedies without benefit, and that she is extremely anxious to have something done to give relief; and hence it is a matter of importance to be acquainted with any remedy which may be likely to prove serviceable. This form of diarrhœa is of an unmanageable character, and very seldom amenable to the ordinary modes of treatment. The common astringent remedies totally fail; chalk mixture, kino, rhatany root, and catechu are useless, and in such cases it has been observed that opium is generally injurious. If you prescribe opium, it certainly checks the disease for a time; but this temporary relief is accompanied by debility, malaise, restlessness, and many uneasy symptoms, and the diarrhœa soon returns and is as bad as ever. The medicine which I have found most effectual in such cases is the persesqui-nitrate of iron. With it I have succeeded in curing many cases which had been exceedingly obstinate, and of very considerable duration, the disease having, in one instance, resisted all the efforts of medical skill for seven months, and in the other for two years. Seven or eight drops of the liq. ferri persesquinitratis, increased gradually to twelve or fifteen in the course of the day, was the quantity prescribed in both cases. In the course of four days a slight diminution of the diarrhœa was perceived, in a fortnight the patient felt much better, and in a month or five weeks it had disappeared altogether. This took place without being followed by any bad effects; there was no swelling of the stomach, no tympanitis, no tormina, no restlessness, or nervous derangement; the patients recovered their health and strength, and the cure was at once safe and permanent."

Cases have occurred to myself where the disease has existed many years, yet were perfectly cured in a surprisingly short time from the use of the persesqui-nitrate of iron. A great deal of ill health frequently proceeds from chronic diarrhœa. Epilepsy and hysteria, for instance, often exist together with a long-continued relaxed state of the bowels, and do not yield till a remedy is obtained for

the diarrhœa. I have seen these and other diseases cured chiefly in consequence of the persesqui-nitrate of iron checking the accompanying diarrhœa.

Dr. Neligan says, that "the persesqui-nitrate of iron is an admirable astringent, possessing also tonic properties. It will be found particularly useful in chronic cases of mucous diarrhœa, when there is much emaciation and loss of appetite. In such cases, I have derived much benefit from its employment after many other remedies had failed."

In some cases, where the ordinary doses (fifteen to thirty drops) thrice a day aggravated the diarrhœa, I have succeeded by giving for some time smaller doses, such as five drops twice or thrice a day, gradually increasing the dose as the patient was able to bear it. In a few cases of the same kind, the persesqui-nitrate has been given in pretty large doses by enema. I have already said, that it is generally inapplicable in phthisis. In my paper in the Edinburgh Medical Journal, there is a striking instance of a lady in the last stage of phthisis having diarrhœa stopped by enemata containing this medicine. Intestinal ulcerations, if they existed, were probably beyond the reach of the enemata. Mr. Tindal of Glasgow, informs me of a case of phthisis, where, after the failure of many remedies, the diarrhœa uniformly ceased on the patient using the persesqui-nitrate of iron. These, however, are exceptions, and the rule is as I have stated.

All remedies which have yet been recommended for cholera have disappointed the expectations formed of them, and this circumstance ought to raise more highly the value of preventives. The contagion of cholera seems to differ from that of small-pox and scarlatina—in this respect, that these diseases seize individuals in perfect health who have not been subjected to any cause injurious to health besides contagion. Whereas, judging at least from my own observation, a person might live unharmed in a cholera hospital if his digestion be good, and his bowels firm; if he paid strict attention to avoid fatigue, to enjoy sufficient sleep; if he kept himself comfortably warm both by day and by night; and if he took care to avoid surfeits and intemperance. No instructions, no admonitions, will ever cause the unthinking part of the population to attend to their health, and when cholera arrives it will cut down its thousands among them. The thinking and virtuous portion will undoubtedly, from contiguity, be placed in danger, though, by strict attention to health, they may escape with comparative impunity. But individuals are placed in perilous circumstances if their digestion be easily deranged, and their bowels usually relaxed. According to the evidence already given, the ordinary remedies are in very many instances inadequate. It is here, therefore, that the persesqui-nitrate of iron is valuable by improving digestion and curing diarrhœa. Before the last invasion of cholera, I paid strict attention to the health of my different patients; and, wherever relaxation of the bowels existed, cases which are more numerous than would readily be suspected, the persesqui-nitrate of iron was

prescribed. I found numerous instances of chronic diarrhœa of such lengthened continuance, that the patients, having frequently tested the inefficacy of the usual remedies, had long abandoned all hope of cure. The persesquinitrate of iron was generally successful, and I do not recollect of one of the individuals thus cured being afterwards seized with cholera. I trust that the importance of this subject is apparent. During the last epidemic, remedies for the disease were eagerly sought after; in the coming, unless some brilliant discovery be made, I apprehend that more attention will be paid to preventives.

In making the solution of the persesquinitrate of iron, I now employ the following formula, which differs in a few respects from the original in the Edinburgh Medical and Surgical Journal.

Take of iron wire (that sold under the name of No. 17), one ounce; nitric acid, three ounces by measure; water, fifty-seven ounces; muriatic acid, one drachm.

Mix the nitric acid with fifteen ounces of water (in very warm weather the quantity of water may be somewhat greater, and in cold weather somewhat less) in an earthenware vessel capable of holding three or four times this quantity. Put into this dilute acid the iron wire broken into a number of pieces, and so twisted as to extend into every portion of the liquid. Cover the vessel lightly, and set it aside. In eight to twelve hours the process is completed, when the solution is to be poured off the undissolved wire, and the remainder of the water, together with the muriatic acid, added, to make up the whole to sixty ounces (thirty in the original formula).

In this process there must be a slight excess of wire (say thirty grains) to ensure the combination of the whole of the acid. A great excess, if allowed to remain long in the liquid, would convert it into the protonitrate. When properly prepared, the solution of the persesquinitrate of iron has a dark red colour, like that of dark brandy; and carbonate of soda produces a red precipitate, unmixed with any tinge of green. The taste is very astringent. The large quantity of water, and the free muriatic acid, are for the purpose of keeping the solution long transparent. In cold weather, two or three months will elapse before it becomes muddy.

Dublin Medical Press, May 24, 1848, *p.* 330.

50.—*On the Diarrhœa of Children.*—By Dr. C. West.—[When diarrhœa comes on in connection with teething, scarification of the gums is not necessarily to be practised: on the contrary it should only be performed when some spot upon the gums is very tense and swollen. To relieve febrile excitement, the use of the tepid bath once or twice a day is serviceable. As to medicines, Dr. West tells us—]

I usually employ in these cases small doses of ipecacuanha in combination with an alkali; and think that I have found great benefit from this plan. Three or four drops of liquor potassæ and the same quantity of vinum ipecacuanhæ mixed with mucilage,

and given in a little milk about every four hours, is the dose for an infant a twelvemonth old. At the same time a powder of one grain of Dover's powder, and one of mercury and chalk, may be given every night, after the child is taken out of the warm bath, and will often be found to procure for the little patient, previously restless and fretful, some hours of quiet repose. If the child should appear much exhausted, a slight stimulant, such as four or five drops of the spirit of nitrous ether, may be advantageously combined with each dose of the mixture; and in all cases of simple diarrhœa it behoves us to watch most carefully against the powers becoming too much depressed, either by the profuseness of the purging or by its continuance.

Supposing in any case that a considerable degree of looseness of the bowels were to continue after the lapse of two or three days, astringents must be resorted to; and I know of none better than the extract of logwood, in combination with tincture of catechu. Five grains of the former and ten minims of the latter, three times a day, in some sweetened aromatic water, is a suitable dose for an infant a year old. The logwood, moreover, is something besides a mere astringent; it is a very valuable tonic in all cases where gastro-intestinal disorder has existed; and it is one which children take readily. It is, however, not very popular in the nursery, because it imparts to the evacuations a deep pink colour, which leaves an indelible stain upon the napkins: a circumstance which it is as well to mention when you prescribe the medicine. The mercury and chalk and Dover's powder may be still continued at bed-time, if the evacuations, though less frequent, be still slimy and unhealthy. If either the evacuations or the infant's breath have a sour smell, three grains of the sesqui-carbonate of soda may be added to each dose of the mixture; or, if the child be not wholly fed at the breast, a drachm of prepared chalk may be stirred up with each pint of milk given to it, and after the powder has been allowed to settle, enough will still remain suspended in the fluid to counteract any slight acidity in the alimentary canal. If, after the bowels have become quite regular, some tonic should still be required, the extract of bark, with small doses of the tincture, will be one of the best that could be given. You will observe that all the remedies mentioned occupy but a very small compass: a point the importance of which is never to be forgotten in prescribing for children.

But there are cases which wear a much more serious aspect than those the treatment of which we have hitherto considered. Even in true *inflammatory diarrhœa*, however, depletion is but seldom needed, for either the abdominal tenderness is inconsiderable, or, if the attack set in with great severity, it will be generally found to have occasioned so much depression of the powers of the system as to contraindicate the abstraction of blood. Still, in cases of recent date, when the abdominal tenderness is considerable, and when it is associated with much heat of skin and febrile disturbance, a few leeches may be applied in either iliac region. The child should be

carefully watched for some hours afterwards, in order to prevent any excessive loss of blood; since considerable hæmorrhage not infrequently follows the application of leeches to the abdomen, and it is not always very easily arrested. In the majority of instances the pain and tenderness of the abdomen are much relieved by the application of a large hot bran poultice: the frequent renewal of which often affords great comfort to the child.

If the irritability of the stomach be not so great as to prevent its administration, no medicine is of such general application, or of such essential service in these cases, as a mixture containing a small quantity of castor oil diffused in mucilage, with the addition of a few drops of tincture of opium. I was led to use this medicine in the inflammatory diarrhœa of children from observing the great benefit which followed its employment by my friend Dr. Baly in the treatment of dysentery among the prisoners in Millbank Penitentiary. The following is the form in which I should prescribe it for an infant a year old, and in which it is taken by most children very readily:—

℞. Ol. Ricini, ʒj.; Pulv. Acaciæ, ℈j.; Syrupi Simpl. ʒj.; Træ. Opii, ♏iv.; Aquæ Flor. Aurant. ʒvij. M. ft. mist. A teaspoonful to be given every four hours.

Although this medicine may relieve all the symptoms considerably, and although the general state of the child may be much improved, yet it sometimes happens that a considerable degree both of tenesmus and of purging continue. These symptoms will now be more effectually relieved by an opiate enema than by any other means. Four drops of laudanum will form an enema of sufficient strength for an infant a year old; and this should be given suspended in half an ounce of mucilage, since a more bulky injection is almost sure to be immediately expelled. Supposing the symptoms not to yield to these means, or that the case presented from the first a great degree of severity, small doses of hyd. c. cretâ and Dover's powder may be given every four hours, in addition to the castor oil mixture, which, however, should now be given without the laudanum.

Medical Gazette, July 14, 1848, *p.* 47.

51.—ON THE USE OF NITRATE OF SILVER INJECTIONS IN DYSENTERY.

By W. Garlike, Esq., Rickmansworth.

[Mr. Garlike thinks that injections may with advantage be used more generally than they have hitherto been, for the purpose of restoring tone to the capillaries of the mucous membrane of the large intestine, before ulceration or gangrene has taken place. He relates, in favour of this practice, the case of a child four years old, which had had symptoms of dysentery for three days. At this time, Mr. Garlike tells us,]

I gave an injection containing two grains of the argenti nitras with ℥ⅹ. of laudanum in an ounce and a half of thin mucilage, at twelve A.M. The administration produced considerable pain, but the effect was most satisfactory: the tenesmus, which had been distressing, was soothed, and the bowels did not act again until ten A.M. the following day, being a period of ten hours, when a disposition to irritability again manifested itself, blood and pus still continuing to pass. I therefore repeated the injection, and prescribed decoct. cinchonæ, nitric acid, and tinct. opii. Bowels not relieved again for twenty-four hours, when feculent matter passed; still some blood. Gave another injection, and from this time the case progressed favourably, but slowly, to a state of health.

On the 24th, case 1, which had remained stationary, evinced symptoms of an acute character, similar to those before described; the bowels were purged several times in rapid succession, and bloody sponges constituted the chief feature of each. The general appearance of the boy was distressing to a degree: face pale; features collapsed; pulse scarcely perceptible; feet and legs cold, with slight tenderness over the abdomen. For these symptoms I administered an injection as before, and applied a large blister sprinkled with camphor and opium over the bowels, to remain on six hours.

25. Bowels not relieved.

26. Passed a feculent motion free from blood. Ordered decoct. cinchonæ, nitric acid, with hyd. c. creta and Dover's powder, aa. gr. iij. every night, with half a grain of opium added. From this time the case gradually progressed to convalescence.

The others were cases of troublesome chronic diarrhœa, and here the result was alike successful. In these cases it would appear that the large intestine was the primary seat of ulceration; hence the advantages of topical treatment, and the decided effect produced by the nitrate, when all the other popular astringents failed, speak loudly in favour of its employment in cases of a similar kind; and, should experience prove it as useful generally in those chronic forms of diarrhœa so perplexing to the practitioner as I have found it in the few cases in which I have employed it, it will be a valuable adjunct to our present list of remedies. In all the different statements given of the treatment of Asiatic cholera, most writers appear to agree in the importance of checking the enormous demand made on the animal powers, by the copious discharge of serum from the bowels, and to suggest a variety of astringent formulæ for injections. Would not the nitrate be useful in these cases? It would appear to me justly worth a trial.

Medical Times, May 27, 1848, *p.* 57.

52.—*On the Use of Astringents in Dysentery.*—By Dr. D. Donovan, Skibbereen.

Astringents given by the mouth are very useful in controlling the profuse diarrhœa that accompanies chronic dysentery. I have tried the vegetable and mineral medicines of this class upon a large scale, and have decidedly found more benefit from the decoction of

logwood, in conjunction with laudanum, as recommended by Dr. Stokes, than from all others put together. Astringent enemata also produce a very good effect in cases where there are profuse discharges without pain. I have tried them composed of acetate of lead, nitrate of silver, &c., and have seen more good done by enemata of sulphate of alum with tincture of opium, than any others: and Dr. Parkes, in his remarks on the hepatitis and dysentery of India, says—"That in the adynamic form, alum, combined with catechu and camphor, is the best treatment."

Dublin Medical Press, May 3, 1848, *p.* 278.

53.—*Case of Dysentery treated by Injections of Nitrate of Silver.*—[A female, 45 years old, was brought to the Hopital Necker, suffering from dysentery of five days' duration. The symptoms had been much ameliorated by the use of opium and other remedies, but the evacuations were still seven or eight in the day, consisting chiefly of bloody mucus, and accompanied by severe pain.]

The following injection was ordered:—

Crystallized nitrate of silver, 25 grammes; distilled water, 200 grammes; to be used in the following manner:—After each injection of the solution, another injection of about 300 grammes of tepid water immediately to be given, in order that the nitrate may be conveyed high up into the intestine, and come in contact with a larger extent of surface.

The next day the amelioration was remarkable. There had been three stools which contained much less of the bloody mucus. There was considerable tenesmus. After four days' treatment, the stools became perfectly normal. They contained more mucus, but little tinged with blood. There was only one stool daily, which was not attended with pain. During convalescence, and in consequence of some error of duty, the diarrhœa occasionally returned, the stools being tinged with blood, but without any appearance of mucus: it was, however, always immediately controlled by the injection of the nitrate of silver, followed the next day by a simple injection of starch; and the patient eventually quitted the hospital quite well.

This case not only shews the efficacy of nitrate of silver enemata but also how they may be used with perfect safety; which fact, for a considerable period, had been denied. A strong solution of the salt has been injected into the rectum and colon, without producing the least accident, either immediately or consecutively. It acts upon the mucous membrane of the parts as it acts upon the lining membrane of the urethra, or the conjunctiva, or upon any other mucous lining to which it is applied.

Medical Times, Oct. 23, 1848, *p.* 336.

54.—*On Tabes Mesenterica, and Chronic Peritonitis in Children.*—By Dr. C. West.—[Chronic peritonitis, so often a fatal disease in children, differs from acute inflammation of the peritoneum, not only in its tardy progress, but in being almost invariably associated

with the tuberculous cachexia. Dr. West gives us the following account of the pathology of this disease.]

The *bodies of children who have died of this affection* are usually found to be exceedingly emaciated, and their face retains after death the suffering expression which it has worn during their protracted illness. The lungs and bronchial glands contain tubercle in greater or less abundance, and the pulmonary disease is sometimes so far advanced as to have obviously had no small share in bringing about the fatal event. On dividing the abdominal parietes, long slender cellular adhesions are often found connecting the peritoneum to the subjacent viscera. The intestines, too, are found connected by adhesions, some of which are very easily broken down, while others are so firm that the coats of the bowels give way in the attempt to separate them. This difference does not depend on the age of the adhesions, (although in this respect they vary greatly, some being apparently of very recent date, others of long-standing,) so much as on their nature. Those connections which are formed by the mere effusion of lymph, even when from age they have acquired considerable firmness, can generally be broken down without much difficulty; and at any rate the attempt will not produce any rupture of the intestines. When, however, different portions of the bowels are matted together so inseparably that it is easier to lacerate than to detach them from each other, it will be found that something more than the mere effusion of lymph has produced this union. It will be seen to have been effected by means of a yellow granular matter, like that which connects the opposite surfaces of the arachnoid in a case of tubercular hydrocephalus, and made up like it in part of lymph, in part of tubercular deposits. Adhesions are thus formed between the opposite surfaces of peritoneum, at first of small extent, but fresh deposits of tubercle soon take place in the vicinity, and the attendant inflammatory process unites together a still greater extent of intestine. Nor is this all; but in time the tubercle thus deposited undergoes a process of softening, in the course of which the muscular tissue of the intestines becomes destroyed, and their mucous membrane may thus eventually be perforated, so that distant parts of the intestinal canal, which at first were merely adherent together, are sometimes brought by this means into direct communication with each other. The abdomen generally contains a small quantity of transparent serum, but if, as sometimes happens, life should have been cut short by the supervention of acute peritonitis upon the old disease, the effusion may be of a puriform or sero-purulent character.

In addition to the evidences of inflammatory action presented by the peritoneum, that membrane and the various abdominal viscera are the seat of a more or less generally diffused tubercular deposit. The surface of the peritoneum lining the abdominal walls is sometimes abundantly beset with small, grey, semi-transparent granulations; but in the majority of cases the tuberculization is less general, and the parietal peritoneum is less affected than other parts of the membrane. That part of the peritoneum which lines the

diaphragm, or the abdominal walls in the vicinity of the spleen, is one of the favourite seats of tubercular deposit, which in these situations generally assumes the form of small yellow miliary tubercles, not that of grey granulations. In some instances the omentum is the seat of the chief tubercular deposit; and though it usually assumes the miliary form, yet now and then masses of crude tubercle of considerable size are met with in this situation. The peritoneum covering the liver and spleen seldom fails to shew an abundant deposit of tubercle; and tubercles usually abound in the substance of the latter organ. The mesenteric glands likewise are tuberculous, though the degree of their degeneration, and the size which they have in consequence attained, vary much in different cases. The same remark holds good with reference to the amount of tubercular disease in the interior of the intestines, which, though in many cases very considerable, yet bears no invariable relation either to the degree of the affection of the peritoneum, or to that of the mesenteric glands.

[The occasional attacks of pain in the abdomen which form a prominent symptom of this disease, may or may not be preceded by vague indications of decaying health. But, however this may be, it is not long before the appetite fails or becomes capricious, the bowels become irregular, and the motions unnatural, and thirst and feverishness set in. Occasionally the stomach is irritable, but the tongue is usually clean throughout the disease. The abdomen soon becomes large, tense, and tympanitic, and manipulation of it occasions uneasiness, or severe pain. As the disease proceeds, though pauses seem to take place in its progress, the symptoms increase in severity.]

The child loses flesh; the face grows pale and sallow, and anxious; the skin becomes habitually dry, and hotter than natural, and the pulse is permanently accelerated. The abdomen does not grow progressively larger, but it becomes more and more tense, although its tension varies without any evident cause, and sometimes disappears for a day or two, to return again as causelessly as it disappeared. When the tension is diminished, the abdomen yields a solid and doughy sensation, and the union between the contents of the abdomen and the abdominal walls becomes very perceptible. The superficial abdominal veins now become enlarged in many instances, and the skin grows rough, and looks as if it were dirty. The pain in the bowels retains the same colicky character as before, but it returns very frequently, and is sometimes exceedingly severe, while the child is never free from a sense of uneasiness. The tenderness of the abdomen, however, but seldom increases in proportion to the increase of pain. The bowels are in general habitually relaxed, though the degree of the diarrhœa, as well as the severity of the abdominal pain, vary much in different cases. As the disease advances, the child becomes confined to bed, and is at length reduced to a state of extreme weakness and emaciation. Death is often hastened by the concomitant affection of the lungs; but should this

not be the case, the patient may continue for many weeks in the same condition, till life is destroyed, after a day or two of increased suffering, by some renewed attack of peritoneal inflammation.

[These symptoms much resemble those usually enumerated as characteristic of *tabes mesenterica*, which is not surprising, since both diseases are the result of the tubercular cachexia, both are seated in the abdomen, and both are attended by an impairment of the functions of nutrition. Indeed, disease of the mesenteric glands was formerly considered the almost exclusive cause of the atrophy of children, and an enlarged belly was supposed to be the almost infallible sign that such disease was in progress; but this is by no means the case. Upon the subject of tuberculization of these glands, Dr. West observes,]

The mere presence of tubercle in the mesentery is, it must be owned, of very common occurrence, since MM. Rilliet and Barthez met with it in nearly half of all children in whom that morbid deposit existed in some or other of their viscera. But though the existence of tubercle in the glands be thus frequent, its presence in any considerable quantity is extremely rare, since, according to the same authorities, it was found in abundance only in one out of every sixteen children, some of whose organs contained tubercle.

The general character of tuberculous mesenteric glands is much the same with that of tuberculous bronchial glands, but the former are usually surrounded by a more delicate cyst; and although their size seldom exceeds that of a chesnut, yet they occasionally undergo a degree of development which far exceeds that of tuberculous bronchial glands, and three or four of them coalescing together, sometimes form a mass as big as the fist, or even bigger.

The effects produced even by an advanced degree of tuberculization of the mesenteric glands are smaller than might be anticipated, and much smaller than those which result from a considerably less amount of disease of the bronchial glands. Nor will this at all suprise us, if we bear in mind the difference between their anatomical relations. The bronchial glands are not merely situated in a cavity which is bounded by comparatively unyielding parietes, but the viscera with which they are in contact are solid and resisting, and they are, moreover, adherent to the trachea and the larger air-tubes, so that any increase of their size is sure to produce compression of parts whose functions are of vital importance. The mesenteric glands, on the contrary, are contained in a cavity whose yielding walls allow them to increase readily in size, while the loose attachments of the mesentery still further permit them to attain even to considerable dimensions, without their pressing upon any viscus, so that it is an exceedingly unusual occurrence for them to cause the perforation of any part of the intestines, or even for them to contract adhesions to their exterior.

To these causes it must attributed that there is no *symptom* pathognomonic of tubercle of the mesenteric glands, except their

being perceptible through the abdominal parietes. This, however, they never are during the early stage of the affection.

In its earlier stages, no symptoms at all are present, or only the indications of that general tuberculous disease of which the affection of the mesentery is usually but a subordinate part. At a later period, when the disorder of the digestive organs attracts attention, the symptoms are generally much the same with those of chronic peritonitis, save that, if the peritoneum be free from disease, the abdomen is in most cases both less tense and less tender.

[As to the treatment of chronic peritonitis and tabes mesenterica, Dr. West says,]

In each of these affections two periods may be distinguished. During the first, while our diagnosis is still uncertain, general principles guide our conduct, and lead us to subject the child to the same dietetic and hygienic management as we should adopt, if we feared the approach of any other form of phthisis In the second period, the advancing mischief has removed all doubt from our minds, but at the same time has chased all hope from our spirits; and we now minister to symptoms as they arise, and try to mitigate sufferings which we cannot cure.

The dyspeptic symptoms, the unhealthy appearance of the evacuations, and the frequency with which diarrhœa occurs, enforce the necessity for the diet being as mild and unstimulating as possible. The abdominal pain which is experienced in tubercular peritonitis is almost always relieved by the application of a few leeches; but even local depletion must not be practised without absolute necessity; and in many instances a large poultice to the abdomen, frequently renewed, will remove pain, the severity of which had seemed at first to call for the abstraction of blood. The logwood and catechu mixture is one of the best astringents that can be employed to check the over-action of the bowels. Sulphate of iron and opium, in the form either of pills or mixture, may be used if the diarrhœa be very obstinate, though we may be compelled to abandon their use, from finding that they aggravate the patient's symptoms; but I have not observed the mere suppression of the diarrhœa by astringents to be followed by any exacerbation of the other abdominal symptoms. Astringents, however, are far from being the only remedies to be employed; but mercurials in a mild form, and continued for a long period, have often seemed to be of much service. When the tenderness of the abdomen has been sufficiently relieved to admit of it, I generally direct the use of a liniment twice a day, consisting of the linimentum hydrargyri, soap liniment, and olive oil, in equal parts, which has seemed useful as a counter-irritant even independent of the mercury, which enters into its composition; besides which I give equal parts of the hydr. c. cretâ and Dover's powder once or twice a day. The Dover's powder prevents the mercurial from irritating the bowels, and also allays the restlessness and feverishness at night—an end to which the use of the tepid bath every evening likewise conduces, often in an eminent

degree. The comfort of the child is often much promoted by wearing a well-adapted flannel bandage over the abdomen both by night as well as by day, and the support it affords may be increased with advantage by a piece of thin whalebone at either side.

If diarrhœa be absent, or if, though it be present in a slight degree, the skin be very hot and dry, and the child very thirsty and feverish, the tepid bath, the mercurial with Dover's powder, and small doses of liquor potassæ and ipecacuanha, are remedies on which I chiefly rely, and to this the extract of dandelion may often be added with advantage. If it seem likely that a mild tonic will be borne, a mixture containing the extract of dandelion, extract of sarsaparilla, and sesquicarbonate of soda, may be given; or the liquor cinchonæ or the infusion of calumba may be employed for the same purpose. It is only with much caution that we can administer chalybeates in these cases, and after having found that the milder vegetable tonics are well borne. The ferro-citrate of quinine, or the citrate of iron, are the preparations which it will generally be desirable to employ in the first instance, and even their effect should be watched attentively. In conclusion, I need hardly mention the importance of change of air, and the benefits likely to result from a sojourn on the sea coast; for you know how much more powerful nature's remedies are in diseases of this kind than the remedies of man's devising.

Medical Gazette, July 21, 1848, *p.* 101.

55.—*On the Treatment of Worms in Children.*—By Dr. C. West. [The symptoms said to indicate the presence of worms, are most of them, Dr. West remarks, of small value; and nothing short of seeing the worms can be regarded as affording conclusive evidence of their existence. When, however, the symptoms usually enumerated continue with varying severity for several weeks together, we have reasonable ground for suspecting the presence of worms, and as Dr. West observes:]

Fortunately the *treatment* which the general symptoms would lead us to adopt will be in great measure such as, if worms exist, will prove most efficacious in producing their expulsion. The capricious appetite will induce us to regulate the diet with care; the disordered and generally constipated state of the bowels will lead to the employment of alteratives, and to the occasional administration of brisk cathartics; while the absence of febrile symptoms will probably seem to warrant the employment of some of the preparations of iron. These remedies will in many instances not have been continued long before the appearance of worms in the motions encourages us to persevere in the same treatment. The combination of ferruginous preparations with active purgatives is a plan especially effective in cases where the lumbricoid entozoa are present, and is likewise of much service in getting rid of the ascarides which inhabit the rectum, and in preventing their reproduction. The latter worms, however, need to be assailed in their habitation; and, from the circumstance of their living in the lower end of the rec-

tum, this is a sufficiently easy task. Enemata of lime-water usually answer the purpose of destroying them; but, should they fail, the addition of some two drachms of the muriated tincture of iron to the clyster is tolerably sure to make it effective. In young children these ascarides sometimes not merely occasion much itching and distressing irritation about the anus, but even produce a troublesome diarrhœa, attended with considerable tenesmus. Under such circumstances, the lime-water injection should be administered daily for two or three days together; while, at the same time, small doses of the castor-oil mixture every six or eight hours will soothe the irritation of the bowels. In female children these ascarides sometimes creep up the vulva, and not merely cause much irritation there, but sometimes excite a leucorrhœal discharge, which ceases on the expulsion of the worms.

The alarming symptoms of cerebral disturbance which have sometimes been produced by worms in the intestinal canal have resulted more frequently from the presence of the round worm than of other varieties of these entozoa. This, however, is not always the case; and in the only instance that has come under my observation in which the occurrence of convulsions seemed clearly traceable to the presence of worms in the intestines, the small thread-worms were the cause of the symptoms. Apart from the knowledge which we have in many of these cases that the child had previously been afflicted with worms, there is nothing in the symptoms which could enable us at once to distinguish between convulsions from this cause and those which result from some other source of irritation of the nervous system. In most instances, however, the child has passed worms frequently before the cerebral symptoms made their appearance, and not improbably was under treatment for the destruction of these parasites at the time when the nervous symptoms supervened. Even though this be not the case, the constipated state of the bowels which is almost sure to have preceded the occurrence of the convulsions, indicates the employment of active purgatives—remedies which in most instances remove together these symptoms and their cause, although convulsions apparently induced by the presence of worms have sometimes had a fatal termination.

The tænia is, as was stated, much less common in childhood than after puberty; and in the few cases in which I have met with it during early life, I have been reluctant to try that heroic remedy, turpentine and castor oil, which is so serviceable in procuring the expulsion of tape-worm in the adult. I have been accustomed to employ the decoction of the bark of the pomegranate root in ℥j. doses three times a day to a child of seven years old, interrupting its administration twice in the week, in order to give a purgative of scammony and calomel. Under this plan, pursued for several weeks together, large quantities of the worm have been voided, and the children have appeared entirely freed from this very troublesome parasite. I have not yet made trial of the administration of a dose of the decoction or powder of the pomegranate bark every

hour for four or five successive hours, as recommended by Mr. Breton,* who brought the remedy into notice in this country. I purpose, however, making a trial of this method on the next occasion that may offer, since the effects of the remedy, when thus administered, appear to be surer, as well as more speedy, than when it is given at longer intervals.

Medical Gazette, July 28, 1848, *p.* 133

56.—*On the Treatment of Worms by Santonine.*—By T. S. Wells, Esq., Surgeon, R.N.—[Santonine, the new remedy which Mr. Wells introduces to our notice, is, he states, in general use as a vermifuge, in the hospitals at Corfu. It is prepared from the Artemisia Santonica; portions of the peduncles and undeveloped flowers of which plant are sold in this country as worm-seed.]

The plant is abundant in the Levant and along the northern shores of Africa, and is much used as a vermifuge in those countries and in many parts of Europe. From ten to thirty grains are generally given in substance, mixed with sugar or milk; the dose being repeated at short intervals, and followed by a purgative. The effects, as might be expected, are uncertain, but the evident power of the herb led to an examination into the nature of its active principle. A resinous extract and essential oil were obtained, and more lately, the salt which is the subject of the present communication.

[The seeds of the santonica are used in the preparation of the salt. When pure, the santonine is in the form of brilliant white crystals, volatile, inodorous, and insipid; sparingly soluble in water, more soluble in ether, alcohol, turpentine, or olive oil. As to its medicinal use, Mr. Wells says,]

The experience of medical men with whom I have conversed, and my own observation, have convinced me that this salt would be a most valuable addition to our Pharmacopœia. Many think its effects more certain upon lumbrici than upon tænia, but I have found it equally efficacious in both. The dose for an adult is from five to eight grains, and for a child from two to four, given as a powder in sugar or preserve, at bed-time, and washed down by a glass of water. In many cases the worms are passed on the following morning, but not unfrequently it is necessary to give a second dose on the succeeding evening. I have not yet found more than the second dose required. In Corfu it is usual to combine the santonine with a moderate dose of calomel, and to follow it up by a saline aperient; but I have not done so, as I thought the trials of the real power of the salt itself would thus become less satisfactory. Very little griping is produced, and the worm is passed dead. If the dose exceed five grains in an adult, a curious effect upon the retina is produced—the patient, for an hour or more, occasionally seeing all objects tinted green or yellow, as though he was looking through coloured spectacles. No visible change in the eye can be

* Medico-Chirurgical Transactions, vol. xi., p. 301.

detected in such cases. In two persons I have seen the urine very highly coloured for a few hours. The men to whom I administered it were strong seamen or marines, and some of them, who had previously taken turpentine on different occasions, said they thought the new medicine equally or more effectual, far less unpleasant to take, and less painful in operation. Forming a small and almost tasteless powder, it is peculiarly adapted to children.

The price I paid in Corfu and Naples was about a guinea an ounce; but as the herb from which the salt is prepared is common and cheap, I should think a considerable reduction of price might be made. I trust our pharmacologists will direct their attention to the subject, as I feel confident that the santonine would be generally found to be a convenient, painless, and effectual anthelmintic.

Medical Gazette, June 16, 1848, *p.* 1035.

URINARY ORGANS.

57.—ON THE PATHOLOGY OF THE KIDNEY.

By Dr. W. T. Gairdner.

[Dr. Gairdner has written a series of articles in the Monthly Journal on "the Pathology of the Kidney," from which we extract the following conclusions:—]

1. By far the greater part of the pathological lesions of the kidney arise from, or are connected with, the exudation of oleo-albuminous granules into the interior of the tubes and epithelial cells.

2. The oleo-albuminous exudation is probably often preceded, and certainly occasionally accompanied, by vascular congestion; but when the quantity of exudation is considerable, more or less complete depletion of the vascular system invariably occurs. This is a secondary result of the obstruction of the *tubuli uriniferi.*

3. The oleo-albuminous exudation occurs in two chief forms; viz., *first*, Universal infiltration of the tubes throughout the organ; and *second*, Infiltration of particular sets of tubules, the rest remaining free, or nearly so. In the latter mode arise the granulations of Bright.

4. There is no essential anatomical difference between the exudations in the kidney which are the result of chronic processes, and those which have been considered as the result of inflammation.

5. The capillary vessels of the kidney are subject to spontaneous obliteration (unaccompanied in the first instance by any visible lesion of the tubes), giving rise to the peculiar affection which I have called the *waxy degeneration.* This obliteration of the vessels is probably in all cases preceded by a stage of congestion.

6. The consequence of the waxy degeneration is thickening and varicose dilatation of the tubuli throughout the organ.

7. The tubes of the kidney are subject to contraction and obliteration, in consequence of the desquamation of their epithelium; a condition resulting in atrophy, and complete disorganization of the organ.

8. The desquamation of the epithelium occurs very frequently in all the other diseased conditions of the kidney. When sufficiently long-continued and extensive, it produces contraction, and this indifferently whether exudation be present or not. It is sometimes accompanied by vascular congestion in every stage of its progress.

9. The earlier stages of the exudations can only be discovered by means of the microscope. The progress of the waxy degeneration, on the contrary, is best traced by the unaided eye. The desquamation of the epithelium is only to be discovered with certainty by means of the microscope, and is particularly apt to escape attention, under all circumstances, if the *kidney* only, and not the *urine*, be looked to. It results that careful investigation, both by the microscope and the naked eye, both of the kidney after death and the urine during life, are indispensable to enable the pathologist to determine with exactitude the presence or absence of disease.

Monthly Journal, Aug. 18, 1848, *p.* 108.

58.— *On the Influence of Diet on the Urine.*—By Dr. Garrod.—[The following remarks on this subject are founded on the experiments of Lehmann, which were performed on himself.]

1. *On ordinary Diet, with amount of Fluid only sufficient to allay Thirst.*—The average amount of urea excreted in twenty-four hours was found to be nearly 500 grains, and of uric acid, about 18.3 grains, and therefore the relation of the uric acid to the urea was as one to twenty-seven.

2. *On a purely animal diet, sometimes on eggs only.*—The urine was then found to become much paler in colour, larger in amount, of a higher specific gravity, 1027, and the addition of nitric acid caused the formation of crystals of the nitrate of urea, re-action very acid.

The mean amount of urea excreted in twenty-four hours was then 819 grains, and of uric acid, 22.6 grains, so that although there was a slight absolute increase of the latter body, yet the ratio between it and the urea was actually diminished, being only about as one to thirty-six. This result is interesting, and contrary to a very common opinion, as showing that in the healthy organism the assimilation of a large amount of animal food does not increase the uric acid. During an animal diet, also, the amount of phosphates, especially those with an alkaline base, become greatly increased, although the amount taken in with the food were diminished; this is owing to the oxidation of the phosphorus contained in the protein compounds. The same remark applies to the

sulphates, the acid of which is chiefly derived from the albuminous matters.

3. *On a vegetable diet*.—The urine then becomes of a yellowish-brown colour, faint odour, acid in its re-action, and sometimes deposited crystals of uric acid. The amount is decreased, the specific gravity remaining much the same as when on an animal diet—viz., 1027.5, the amount of solids is decreased, so also the urea, but not the uric acid. The urea amounted to 346.5, the uric acid to 15 7, so that the ratio of the uric acid to the urea becomes absolutely increased—viz., as one to twenty-two.

4. *On a non-nitrogenised diet*.—The food then consisted of amylaceous principles, as sugar, starch, and gum, together with oleaginous bodies, as almond oil. The urine became brownish red, slightly acid, but having considerable tendency to become alkaline. The experiments were only performed for two days after the commencement, as the health became affected; the quantity of urine was not affected, but the total solids suffered considerable diminution, the urea on the second day being reduced to 285 grains, and on the third to 190 grains, whilst the uric acid on the second day was 13 grains, on the third, nine grains; the phosphates and sulphates were also diminished. These last results would have been more satisfactory could the non-azotized diet have been continued, because it probably requires two or three days for the effects of the previous diet to pass off, and, therefore, we only get approximations to the results which would follow the want of nitrogenized nutriment. In the following table is seen, at one view, the total mean quantities of urea and uric acid, and total solids passed during twenty-four hours, when under the influence of the different diets, expressed in grains;—

	Mixed diet.	Animal.	Vegetable.	Non-azotized
Solids	1047 ...	1350 ...	915 ...	643
Urea	500 ...	816 ...	346 ...	238
Uric acid ...	18 ...	23 ...	16 ...	11

Lancet, Nov. 4, 1848, *p.* 494.

59.—ON EXCESS AND DEFICIENCY OF UREA IN THE URINE.

By Dr. Prout, F R.S, &c.

From long experience, Dr. Prout considers excess of urea as comparatively a rare disease; for, (he says,) where I have seen one decided case of an excess of urea in adults, I have seen twenty cases of diabetes. There is reason, however, to believe that this unusual occurrence of the disease is more apparent than real, and that, in a great variety of instances, patients do not apply for medical advice till the complaint has merged into diabetes or some other disease, to which it often constitutes the transitive step. That the disease, if permitted to proceed unchecked, or if injudiciously treated, passes into diabetes or some other for-

midable disease (perhaps the disease to be next considered), I have the strongest presumptive evidence, both from observation and analogy.

The treatment should be both dietetic and medicinal. The diet should be light and nutritious, but neither irritating nor stimulating. It should consist principally of animal and farinaceous matters; and, if accustomed to fermented liquors, the patient may be allowed a small quantity of generous wine or sound porter. All diluent and diuretic fluid should be carefully avoided, and the thirst, which is generally urgent, should not be quenched by drinking largely, which would only aggravate the disease. Moderate exercise, as walking or riding, will prove useful, but anything like fatigue, mental or bodily, will be hurtful. The following observations on the treatment are judicious and deserving of notice:—

From the various forms which this disease assumes in different individuals, no plan of medical treatment can be laid down that will be found strictly applicable in all instances. The great principle to be kept in view is to do no harm by rough treatment. Calomel pills, black doses, and saline purgatives are calculated to do infinite mischief, and will probably render a manageable disease perfectly unmanageable. Hence, though the use of purgatives and alteratives is often indicated and even necessary, more especially in the earlier stages of the disease, they must be employed with caution, and their effects carefully watched. In both forms of the disease, and particularly in the second, sedatives are usually required, and of these opium is the chief. With the sedatives may be conjoined such tonics as seem to be suited to the individual habit; and as the complaint recedes, and the health becomes re-established, the sedatives may be gradually withdrawn. Such are the principles of the treatment I have usually found most beneficial; the details, of course, must be suited to the circumstances, according to the judgment of the practitioner.

Excess of urea in the urine is often associated or complicated with various other affections, which, of themselves, would never lead to the inference of such a morbid or unnatural state of the urine. Independent of its connection with certain urinary conditions, it has been observed to be associated with epilepsy and other nervous affections; and we, ourselves, have observed it in connection with certain forms of hysteria and nervousness, approaching, though not amounting quite, to insanity. Such secondary complications, if they may be so called, present an obstinacy of character more apparent than real; for if the urine be attended to, and its unnatural condition removed, epilepsies, hysteria, and many nervous affections, previously unassailable, readily give way. We, therefore, fully concur in the views of Dr. P., as expressed in the following passage:—"Hence, in whatever circumstances an excess of urea in the urine may be found to occur, whether as denoting a peculiar state of disease, or as complicated with more urgent derangements, it is always a symptom of such importance that it ought to be known to the physician, who, if he has duly

studied its pathology, will generally be able to apply his knowledge, either directly or indirectly, to the patient's advantage."

Having considered excess of urea, Dr. Prout next proceeds to the consideration of those affections in which deficiency of urea is the more prominent characteristic. A deficiency of urea frequently gives rise to various anomalous symptoms which often puzzle and perplex the practitioner. Urea is a product of the secondary assimilation, and may be looked upon as the effete and useless, or perhaps injurious, elements of the decomposed tissues, modified or converted into a principle suited to elimination and evacuation from the system through the kidneys, as the most appropriate outlets. If, then, urea, or its equivalent, carbonate of ammonia, be not secreted and eliminated, the blood will probably become deteriorated, and exert a deleterious if not poisonous influence upon the system, and, it is probable, that there is no state of existence compatible with life in which urea or its equivalent, carbonate of ammonia, does not exist in the urine. This, in fact, is in accordance with our own experience, as no specimen of recent urine which we have ever examined was found entirely destitute of urea, or, what amounts to the same thing, carbonate of ammonia. Indeed, we hardly think it possible for life to continue beyond a few seconds if the urea were not voided; and it is by no means impossible but that certain apparently apoplectic seizures, terminating fatally, but which, on dissection, disclose none of the morbid phenomena, may be really instances of death from the circulation of the blood poisoned with urea. But although the complete absence of urea, or some other equivalent principle, from the urine is possibly compatible with life, there are often instances in which the quantity is very much less than natural. Thus, "there are several forms of disease, both in adults and in children, in which the proportion of urea is not only absolutely but relatively less than in healthy urine; and though these forms of disease are rarely of that distinct character as to be pronounced idiopathic, and, in fact, are often referable to other forms of urinary disease, yet it may not be deemed superfluous to bring together under one head, and in a summary form, a few of the more remarkable of these forms of disease."

One of the most prominent characters, however, is *diuresis*. With, perhaps, but very few exceptions, we mostly find diuresis to a greater or less extent a symptom; and these diseases are found to present features varying somewhat as they occur in adults and in young children. Deficiency of urea accompanied by diuresis in adults. Dr. P. observes, may be considered under the heads of *diuresis intermittens and diuresis continua.* Perhaps the nearest approach to a total absence of urea occurs in hysteria. Hysterical diuresis, however, is only occasional; and in the intervals the urine passed frequently contains a much larger proportion of urea than natural. The peculiar characters of hysterical urine are, a very low specific gravity, sometimes as low as that of spring water. It is limpid, odourless, colourless, and nearly devoid of sensible properties of every kind; but this is only in the very diluted state

in which it is passed, for, if it be concentrated by evaporation, it develops both sensible odour and colour, and affords chemical evidence of saline principles, and even of urea. This urine very soon putrefies and acquires a smell like cabbage-water; becomes opaque and deposits crystals of triple phosphate, especially in warm weather.

Urine of these sensible characters is not confined to hysterical females. It may also be remarked, observes Dr. P., that many nervous individuals who cannot be said to be hysteric, or to be subject to urinary disease, often pass large quantities of limpid urine on exposure to cold and to various other exciting influences; but such urine generally differs from hysteric urine in being only *very dilute* healthy urine, while in hysteric urine the relative proportions of the ingredients are always deranged.—

The two forms, however, often run into each other so imperceptibly as to render distinction almost impossible. The intermittent diuresis so often connected with mental emotions does not occur in young children. The treatment is that for hysteria generally, and needs no detail.

In deficiency of urea, with diuresis, there are generally constitutional symptoms, but of almost every variety of character. The most constant are "great thirst, a dry state of the skin, and usually a constipated state of the bowels." In most cases there is an uneasy sensation referable to the stomach, accompanied by a morbid craving for food; at other times this sensation merges into nausea, and there is a perfect indifference to solid matters, which are almost immediately ejected by vomiting. There are also more or less of emaciation, depression of spirits, and great muscular debility, with all their consequences.

The causes seem to be enveloped in considerable obscurity. The disease, as already stated, seems to be in general associated with a *nervous* temperament, which has caused it "to have been viewed in the light of a perpetual state of hysteria." But this cannot be trusted as a correct view. "According to my own observation," says Prout, "which seems to agree with that of others, the present form of diuresis occurs in both sexes, and at different ages, though it seems to be more frequent in women, and in both sexes, about the middle period of life. Sometimes, as already stated, it appears to be the natural consequence of the form of diuresis connected with an excess of urea. At other times it cannot be referred to any distinct cause. My belief is, that it is often connected with, or leads to, incipient disease of the kidneys; and, if this opinion be correct, it may occasionally pass into one or other of the forms of disease to be considered in the next section."

We certainly think, from our own experience, that the disease is very often not only the concomitant, but even the forerunner of disease of the kidney, especially that form connected with albuminuria, usually known as Bright's disease. There is often also, in addition to organic disease of the kidney, a similar condition of

the neck of the bladder, and which, probably, may be the cause of the diuresis. The morbid anatomy has, upon several occasions, furnished good grounds for such views. The urine, too, in these cases, is often alkalescent, or even slightly serous.

The disease is not only obstinate, and mostly very unmanageable, but often ends in dropsical effusion of some kind, or in coma.

"Diuresis, with a deficiency of urea, from its deep-seated character, is generally a disease of great obstinacy, and yields with difficulty to medical treatment; even when for a time it appears to give way, it is apt to return from the slightest cause. As one of the most frequent terminations of the affection seems to be disease of the kidneys and its consequences, this form of affection generally proves fatal from dropsical effusion or coma."

Hence must appear the importance of examining into the properties of the urine when diuresis to any extent, otherwise unintelligible, prevails. In cases of apparently an anomalous description, the practitioner should ascertain the condition of the urine, with respect to urea, and determine whether this principle be remarkably deficient or not. Nor is it any answer that the disease being incurable, and hardly ever to be mitigated by remedies, renders the knowledge of its nature useless. If we remain ignorant of the nature of the disease under treatment, we can never hope to improve our practice.

The treatment offers a most difficult problem, and indeed, hardly to be solved. Much of the treatment has been explained in the therapeutical history of diabetes, and, therefore, needs no comment here. "One of the first principles to be attended to, is, as much as possible, to restrain the patient from drinking; for, if he be allowed to drink *ad libitum*, it is in vain to hope for benefit from any plan of treatment. Another point to be kept in view is to promote cutaneous action. For this purpose the vapour bath and friction, assisted by the internal use of Dover's powder, antimony, &c., or, if the patient's circumstances admit, removal to a warm climate, will be found highly serviceable. Tonics of every kind usually disappoint our hopes; and the more active tonics especially often increase the thirst. As in diabetes, I have seen more benefit derived from the means above stated, joined to the use of sound porter and a system of diet chiefly consisting of animal and farinaceous matters, than from any other means."

The bowels should be kept regular, but active purgation avoided. According to Dr. P., "Active purgatives for a time, indeed, divert the fluids to the bowels, and the urine consequently is diminished in quantity; but, as soon as the effects of the purgatives cease, the diuresis returns in an aggravated form." But the varieties of form assumed by this disease in different individuals seem to preclude the notion of any specific plan of treatment.

Medical Times, Aug. 26, 1848, *p.* 276.

59. – *Urea in the Perspiration.*—Dr. LANDERER, Professor of Chemistry at Athens, has just discovered a considerable quantity of urea in the perspiration. After having soaked in water a piece of flannel which had long been in contact with the skin, he obtained a yellowish liquid, slightly acid, and of a saltish taste; this was evaporated, and deposited, after a few days, a granular mass of phosphates. The supernatant liquor was then treated by alcohol, and gave, after evaporation, a residue emitting a strong smell, and having a sweet taste. This being dissolved in water, and decomposed by oxalic acid, gave, in about thirty-six hours, a precipitate composed of small crystals of oxalate of urea. To make doubly sure, Dr. Landerer dissolved these crystals, and treated the solution by carbonate of lime, and then by alcohol; after evaporation, a few drops of nitric acid were added, and silky crystals, of a slightly acid taste, and decrepitating over the fire, were obtained.

Lancet, May 13, 1848, *p.* 524.

60.—*Case of Injury to the Kidneys.*—By Dr. E. J. SHEARMAN, Rotherham.—In consequence of death in general so speedily following the suspension of the excretion of urea by the kidneys, owing to its consequent quick absorption into the blood and poisonous influence on the brain and nervous system, it rarely happens that time is given for a practitioner to determine decidedly, both chemically and pathologically, that the comatose symptoms depend altogether on the non-elimination of urea by the kidneys. The following case, from the attending circumstances, elucidates this point so simply and fully, that I cannot refrain from putting it on record:—

On the 23rd of last September, Edward C——, aged eight years, in perfect health, while at play, was run over across the loins by a heavy truck. In two hours after the accident I saw him. He was then in a state of collapse, and my impression was, that some internal hemorrhage was then going on, for he was blanched, cold, and pulseless. He complained of acute pain in the left lumbar region, which was very tender to the touch, spreading to both the inguinal and the pubic region. I gave him stimulants, and kept him warm, by which means, in the course of thirty-six hours he gradually improved; and he then passed a large quantity of blood with his urine, not having previously voided any urine since the accident. This was repeated several times during the next twenty-four hours.

I examined this urine and blood most carefully, but failed to detect the least particle of urea or urates in it.

My little patient became more restless: fever set in, with a pulse at 130; and the pain in the region of the kidneys increased, notwithstanding the application of leeches, &c. But these symptoms in the course of two days were succeeded by coma; he could not be kept awake.

I now bled him in the arm and reapplied leeches to the tender part. On examining this blood, urea was most distinctly detected in it, and in considerable quantity. The urine, at the same time, contained not a particle of urea, urates, uric acid, or albumen, and its specific gravity was only 1,005.

I got him under the influence of mercury as quickly as possible; as soon as its specific effect was apparent, urea gradually reappeared in the urine, and its specific gravity increased. By degrees the comatose symptoms subsided, and in the course of five weeks the usual health was re-established. He continues quite well.

The mode of detecting urea in the blood which I adopted was the one recommended by Dr. G. O. Rees, ("On the Analysis of Blood and Urine, in Health and Disease," second edition, page 40,) which I will describe shortly, as some readers may not have that useful work in their possession.

The first quantity of serum analysed was 400 grains by weight, which were evaporated to dryness over an open steam bath. I broke up the dry extract, added two ounces of distilled water, and digested it over an open steam bath for an hour, occasionally supplying the loss of water; then filtered the digested fluid, washing the residue on the filter with distilled water, which I added to the mother liquor. I then evaporated the whole over an open steam bath, and digested the residue with eight times its bulk of absolute alcohol, at a gentle heat, for half an hour, taking care not to diminish materially the bulk of the fluid. It was then filtered a second time, evaporated to dryness, and dissolved in a little lukewarm distilled water, and again evaporated to the consistence of a thin syrup. I now added a few drops of nitric acid, and set it aside to crystallize.

Previously to adding the nitric acid, a very strong odour of urea was perceptible. On examining the fluid under a microscope, to which the nitric acid had been added, tabular crystals of nitrate of urea were easily perceived, commencing in appearance as transverse lines across the watch glass.

On examining afterwards a larger quantity of serum, (600 grains) a more considerable quantity of the nitrate of urea was observed.

Although the quantities of serum analysed were, in both cases, small, undeniable proof of the existence in them of urea, in considerable quantity, presented themselves; there must, then, have been a large quantity of urea in the blood.

It was my intention to have ascertained the amount of urea in a certain portion of serum, but I was obliged, from existing circumstances, to suspend my examinations at this point.

It is well known that in youth, the quantity of urea in the urine is much larger than in the adult, owing to the more rapid disintegration of the tissues. In this case a considerable portion of that excretion must have been circulating through the system.

In the absence of an actual examination of the organs affected, it appears to me that the ramifications of the renal arteries, which form the external vascular portion of the kidneys were ruptured by the accident, which would be followed by congestion and inflammation of the Malpighian bodies and tubuli uriniferi, thus preventing all real secretion, and merely allowing the watery part of the blood to percolate through the tubular portion of the organs.

Lancet, June 24, 1848, *p.* 685.

61.—OBSERVATIONS ON ALBUMINURIA.

By Dr. J. F. Duncan, Assistant Physician to Mercer's Hospital, Dublin.

In dropsy, depending upon granular disease, three peculiarities of the urine are found commonly associated together. These are, its containing albumen, its low specific gravity, and its scanty amount. At first it was supposed that the mere presence of albumen was of itself a proof of the existence of a granular state of the kidney. Subsequent experience corrected this opinion. It was found that the urine of many persons exhibited this property, who could not be supposed to labour under such a disease. Certain articles of food will produce it temporarily, and it is frequently met with in persons recovering from scarlatina. This latter has been explained by the hypothesis that at such times a desquamation of albuminous matter, similar to the exfoliation of the cuticle externally, takes place from the mucous membrane of the tubuli uriniferi, and, mingling with the urine, gives rise to the symptom. It was then imagined that if albumen could be detected continuously for a length of time, it might safely be inferred to exist. Even this is not always the case. In dropsy, depending upon valvular disease of the heart, the urine frequently coagulates, because congestion of the kidney must necessarily result, and the serum of the blood, which contains albumen, escapes from the gorged vessels into the excretory ducts. Similarly, I have found it very well marked in cases of scurvy, where the attenuated condition of the blood favoured its transudation through the capillaries of the gland. In all cases, I believe it indicates neither more nor less than this, that the serum of the blood is passing off by the urine. A granular condition of the kidney may certainly cause it, but it may also occur totally independently of such a state. Two other symptoms which were noticed in the case of Doris, and which are not unfrequently met with, seem also to depend upon the transudation of blood through the kidney: these are, the smoke-brown colour that the urine assumed, and its neutral reaction to test-paper. The former is caused by the ferruginous salts being acted upon *in transitu* by the sulphuretted hydrogen of the system; and the latter by the free alkali of the blood neutralising the acids proper to the secretion. Neither of them, it is manifest, indicates the existence of Bright's disease any more than the property of coagulating by heat; they suggest, however, one precaution to be observed in attempting to determine the presence or absence of albumen, and that is to acidulate the liquid slightly before exposing it to heat, because the ammonia, from its volatile nature, is easily expelled, and the earthy phosphates which are then precipitated might very readily be mistaken for flakes of albumen.

Low specific gravity, and deficient quantity, are both conditions of this secretion, compatible with health, when they exist singly, because they depend solely upon the amount of water carried off at the kidneys. In hysteria, where the fluid is often enormous, the

specific gravity is very little higher than that of ordinary water; and on the other hand, when a patient drinks but little, the specific gravity is relatively high. It is only when the two conditions co-exist—when the specific gravity is low and the quantity small, that we have reason to consider the patient's state unhealthy. Now, both of these are apt to occur in Bright's disease, because the deposit mechanically interferes with the secretion of the gland. In diabetes, on the contrary, the very opposite takes place. There is enormous secretion and high specific gravity.

In stating, however, that low specific gravity and deficient quantity, are the common attendants of Bright's disease, I must be careful to guard against misconception. Many persons are in the habit of considering them invariably present, but Christison has shown distinctly that both in the earlier and the later stages of the complaint, but especially the former, the quantity of urine passed may very nearly equal the average of health. The diminution of density, however, is in general very remarkable. The reason of this is obvious on a little reflection. The mechanical impediment arising from granular degeneration interferes less with the secretion of fluid than with that of the saline matters which determine the density. This change in the specific gravity is often sufficiently indicated by the ordinary urinometer; but evaporation and drying the residuum will of course ensure greater accuracy in the result. Dr. Christison informs us that he has known the solid contents reduced from 1340 grains in 10,000, to 700, 500, and even to 400 grains.

[Although the labours of many eminent men have thrown light upon this disease, yet, Dr. Duncan observes, it is to Dr. Johnson that we owe our knowledge of its real pathology. Dr. Duncan says:]

To explain more clearly the recent discoveries upon this subject, I may mention that it has been satisfactorily proved by Dr. Johnson to be really a fatty degeneration of the kidney, constitutional in its origin, altogether unconnected with inflammatory action, and analogous to fatty degeneration of the liver, but from circumstances hereafter to be explained, infinitely more dangerous in its effects upon the economy.

The three great excretory glands of the human body are, the lungs, the liver, and the kidneys. Each of these has, for its peculiar office, the elimination of an essential element from the organism. Thus: the lungs remove carbon; the liver, hydrogen; and the kidneys, nitrogen. Not that they eliminate these singly or exclusively; various combinations of these elements are formed, but all for the purpose of rendering their removal more easy by the channel that nature has provided for the purpose. Thus, the carbon of the lungs is combined with oxygen, to give it the gaseous orm, whereby it is readily carried off during respiration; the hydrogen of the liver is united with carbon, to form the various fatty matters that analysis shows us to exist in the choleic acid and

cholesterine of the bile; and the nitrogen of the kidneys is united with hydrogen and carbon to form urea and ammonia. It is true that a quantity of nitrogen has been proved to be exhaled at the lungs, and a quantity of fatty matter is carried off at the kidneys, even in health; but the amount is so small, relatively speaking, that it may safely be asserted that the proper channel for the removal of each is that which I have just now stated. Whenever any of these processes is interrupted from any cause, a noxious accumulation of these elements results, and more or less injury is the consequence. You are all familiar with this in the case of the lungs. You are probably less familiar with it in the case of the liver. If the fatty matters which are composed of hydrogen and carbon be not removed in sufficient quantity, they accumulate in the vascular system, the blood becomes loaded with them, and a deposit takes place, first, into the parts, naturally adapted for their reception—the subcutaneous cellular tissue, the omentum, mesentery, &c., and finally into other parts not at all designed for the purpose—the muscular tissue, the cells of the liver and kidneys, &c., constituting fatty degeneration of these parts. The danger, however, is not equal in these various situations. In the liver, from the lax nature of the cellular matrix, and the facility with which it admits of enlargement, this lesion may exist to a considerable extent without interfering materially with its proper function. In the kidney, on the contrary, from the dense arrangement of the parts, such a thing is impossible; congestion of the vascular apparatus necessarily results, producing the hypertrophied and mottled appearance which is described as the first stage of the complaint. Subsequently, as the pressure increases, the nutrition of the gland is interfered with, atrophy takes place, and the kidney becomes pale, small, and lobulated. This is the advanced stage.

That the disease is really due to the retention of these fatty matters in the system, and especially to their accumulation in a part unfavourably circumstanced for their reception, is proved not merely by a minute examination of the granular matter itself, but by a variety of other considerations which are worthy of your notice. If a patient labouring under the disease be bled from the arm, and the serum be allowed to separate from the crassamentum, it will exhibit a milky appearance from the presence of oil-globules, which can be removed by digestion in ether. Again, it has been noticed by Dr. Johnson as the result of his post-mortem examinations that Bright's disease is frequently associated with atheromatous deposits in the arteries, which, you know, are really of a fatty nature, and still more frequently with fatty degeneration of the liver. The pale waxy complexion that patients labouring under this disease exhibit, is perhaps due, not so much to the loss of blood, which is constantly oozing through the obstructed kidneys, as to the quantity of fat which is accumulated under the tegumentary membranes. It is a remarkable circumstance that we do not find emaciation to occur in these cases to the extent that we might naturally expect in so chronic a complaint. But the principal argu-

ment in support of this view is that which is derived from microscopic examination of the urine. This secretion properly consists of two parts—the water and the saline ingredients; the former in health is a simple percolation from the open capillaries of the Malpighian tufts; the latter is accomplished by means of epithelial scales, which are detached from the inside of the tubuli uriniferi, and which grow from time to time by an inherent vital action. The mechanism of these parts is admirably contrived to facilitate this process. The stream of liquid in its descent through the tubuli washes away the scales as they are formed, and both mingling together constitute the secretion such as it exists. These scales can be readily recognized by the microscope, as I have pointed out to you on several occasions. In health, they are quite free from any adherent fatty matter, and the fluid contains scarcely a trace of any oil-globules. In Bright's disease, on the contrary, both of these appearances become conspicuous in proportion to the extent of the mischief. In acute nephritis and scarlatina the number of these scales is augmented, but their size is diminished, and they evidently give the idea that they have not arrived at maturity. In the case of our patient, the absence of these characteristic appearances in the urine led me to conclude that he did not labour under granular degeneration of the kidney, notwithstanding the many points of resemblance to that disease which his symptoms presented.

Let us now inquire how this theory will explain the operation of those agencies, which are ascertained to be the common producing causes of the complaint. These are, you may remember, intemperance, confinement. and unsuitable food. In fact, it is by the employment of these means that the disease has been artificially produced in animals by Dr. Johnson and others. Intemperance acts by introducing into the system oleaginous fluids of weak power (alcohol being in fact a combination of two atoms of olefiant gas and one of water), and perhaps, also, by its peculiar action on the lungs; for it has been ascertained that while the primary effect of stimulating liquids is to accelerate the respiration, the remote effect on the contrary is to diminish both its frequency and force.

Confinement and bad air operate obviously by depriving the economy of its proper quantity of oxygen. In health, when oxygen is freely supplied to the system, the carbon is consumed as carbonic acid and the hydrogen as water. In the circumstances here supposed these effects cannot be adequately accomplished, and the retained carbon and hydrogen enter into combination, and form fatty matters of various kinds. Innutritious diet, or that which is deficient in animal substances, acts injuriously from the want of nitrogen; for you are aware that ammonia consists of one atom of nitrogen and three of hydrogen—consequently, a free supply of nitrogenous matters must tend powerfully to get rid of one of those elements upon whose existence in the economy this disease depends.

I think it unnecessary to tell you that the treatment of this affection, before the present theory was propounded, was as uncertain and unsatisfactory as possible. The most opposite remedies

were recommended for its removal, but the only opinion in which all authorities seemed to agree was in its incurability. Tartar emetic and bleeding, assisted by local cupping, were adopted by some, under the idea that it was a real but peculiar nephritis. Diaphoretics internally and vapour baths were trusted in by others under the impression that it resulted from suppressed perspiration; and others again adopted diuretics upon no very intelligible principles, though the general impression of the profession was decidedly against their use.

Now, on the contrary, instead of this confusion, our course becomes easy, intelligible, and simple; and though we may not anticipate success in every instance, we can clearly perceive that there is nothing in the nature of the affection to render it necessarily incurable or fatal. The microscope not only enables us to distinguish real granular degeneration, and those congestions of the kidney which are liable to be mistaken for it; but it enables us to do so at that very period in the history of the complaint when the diagnosis is important. However dangerous the disease is in the advanced stage, at the earlier periods it is certainly capable of alleviation, if not of cure. The obvious course of proceeding in any such case would be,—1st. to remove the exciting and predisposing causes where they exist, such as intemperance, and residence in an unwholesome atmosphere; 2nd, to oxygenize the blood by active exercise in the country and in the open air; 3rd, to avoid fatty and all other non-nitrogenous articles of food; 4th, to administer alkalies in free doses, which, by their action on the animal fats, will probably render their elimination more easy of accomplishment; and, 5th, to administer purgatives, so as to keep up a tolerably free action of the bowels.

Dublin Medical Press, June 28, 1848, *p.* 401.

62.—ON DIABETES.

By Dr R. B. Todd, F.R.S., Physician to King's College Hospital.

[In a clinical lecture on the subject of diabetes, Dr. Todd relates the cases of two men who were recently subjected by him to the most rigid dietetic treatment for nearly two months. They were locked up in a room by themselves, and every precaution taken to prevent them getting any food or drink but that which was prescribed. The name of the first patient was Hardy, and he was placed in the solitary ward on the 22nd of November, 1847:]

On the day of his admission into the new ward his diet was the following:—

For *Breakfast*—Milk, 1½ pint; tea, 1 pint; Bread, 8 ounces. *Dinner*—Meat, 14 ounces; Eggs, 2; porter, 2 pints. *Supper*—Meat, 8 ounces; tea, *ad libitum*.

At this time Hardy was in extremely low condition; he was much emaciated, he suffered greatly from thirst, and was often disturbed in the night by the urgency of his thirst, and the necessity for frequent micturition; he was excessively weak and languid, and could hardly walk up stairs. Three days previous (the 19th,) he was weighed, and it was found that his weight was only 128 pounds, it having been 127 on the 14th, and 129 on the 6th. On this day he drank nine pints of fluid, and passed eleven pints of urine, the specific gravity of which was 1.034, and which, to all the ordinary tests, yielded unequivocal evidence of holding a large quantity of sugar in solution.

On the 23rd the quantity of liquid drunk was nine pints, and that voided was eight pints, of specific gravity 1.038. His diet for this day was—

At *Breakfast*—Eggs, 2; Beef tea, 1½ pint. *Dinner*—Meat, 14 ounces; Beef tea, 1 pint. *Tea*—Meat, 6 ounces; Eggs, 2; Beef tea, 1½ pint. *Supper*—Meat, 8 ounces; Beef tea, ½ pint.

On the 24th he had passed a good night, having been disturbed only twice to make water,—this was a great and rapid change in this particular symptom. Very early in the morning he was attacked with a violent itching of the skin, accompanied by an eruption resembling urticaria, which was probably produced by the very different diet he was then taking, from what he had previously. The patient stated that he felt unusually well, and differently from what he had been at any time previously, during his residence in the hospital. The skin was slightly moist; the saliva abundant; tongue clean; pulse 90; urine six pints and a half, eight pints of liquid having been drunk; it was acid, and the specific gravity ranged, during the day, from 1.030 to 1.032; one specimen was passed of 1.021.

The following diet was fixed for him—

Breakfast—Meat, 1 pound; Water *ad libitum*. *Dinner*—Meat 1 pound; water, *ad libitum*; Greens. *Tea*—Meat, 6 ounces; Eggs, 2; water *ad libitum*. *Supper*—Meat, ½ pound.

He was also to have two bottles of Carrara water during the day.

On the morning of this day he also took an emetic, (Zinci Sulphatis, gr. xxv.;) it did not make him vomit, but produced slight nausea. About 9 o'clock, p.m., he had another attack of cutaneous itching, but it was less intense than the previous one, and only lasted half an hour.

On the 25th the patient felt still better, he had passed a comfortable night, the sulphate of zinc having caused only very slight diaphoresis; he had been disturbed but twice to pass water; the tongue clean and moist; skin damp; thirst less. The urine, which was in quantity eight pints and a quarter, had totally changed, it now contained *no trace* of sugar, and this was the first instance of a specimen of this man's water being destitute of that substance; its specific gravity was 1.028.

From this time his general symptoms underwent a decided

change, constantly and steadily improving. The urine became much less abundant; and I would here draw your attention to some of the most striking instances of its dimunition in this table, and in showing you this I would also remind you, that on the 19th of October he drank ten pints ten ounces of liquid, and passed seventeen pints eight ounces of urine; and on the 22nd of November nine pints were drunk, and eleven pints passed; and three days before twelve were passed, while nine were drunk; and I say, remembering how large was the quantity of fluid drunk and passed just previous to this patient entering the new ward, and how fixedly it kept at that high amount, the immediate diminution, and steady decrease, which it subsequently underwent, are very striking:—

Date.	Quantity Drunk.	Quantity voided.
Nov. 10	144 ounces	192 ounces.
„ 22	144 „	176 „
„ 24	128 „	104 „
„ 26	120 „	92 „
„ 29	104 „	92 „
Dec. 5	80 „	68 „
„ 9	48 „	80 „
„ 10	48 „	64 „

During the whole of his sojourn in this ward, the quantity of urine passed kept very steadily to about five pints, (80 ounces,) the thirst also became much less, and, as you see in the above table, he did not drink half the quantity of fluid he had at one time; three or four pints would often satisfy him. The saliva was much more abundant, and was less acid; the pulse too had greatly lessened in frequency, and the diminution in its rapidity seemed to keep pace with the improvement in his other symptoms: thus, on November 24th, the pulse was 90; on the 30th, 80; on the 3rd of December, 84; on the 5th, 70; on the 6th, 72; and on the 8th, it was 72 likewise.

[Without pursuing the details of this case further, we may give the deductions drawn from it by Dr. Todd. He says:]

1st. That the change to an exclusively animal diet was very well borne. It produced no fever, as from common prejudice we might have been led to anticipate, and especially taking into consideration the large quantity taken,—about 3lbs. a day; but, instead of fever, the pulse steadily and regularly lessened in frequency, and did not again rise till he had violated the strict law as to his diet which I had laid down for him, and partially returned to his former mode of feeding. Primary digestion was very well performed—wonderfully so, when we consider the large quantity of food taken in, and the peculiar character of that food.

2ndly. That the most marked effect upon the secretions, and upon the symptoms generally, was produced *immediately* after the change of diet. If you compare his condition at two or three days

after we commenced our new mode of treatment, with what he was at a fortnight, (excepting his increased weight and strength, which of course must be gradual,) you will see little difference. Three days after his admission into the separate ward, the urine diminished from 176 to 92 ounces; his skin, which had previously been dry and harsh, was moist and soft, and at night he had abundant perspiration; his mouth, before dry and clammy, was now moistened by plentiful saliva, and this, too, was of a more natural character, for it was less acid. All this occurred in the first two or three days. The increase of weight which the patient underwent must necessarily occupy some time; but still it is to be remembered, that in the first fourteen days he gained 7 pounds, while he only gained 9 pounds in forty-eight days afterwards. This shows what a marked effect this mode of treatment had upon the disease immediately upon its establishment.

3rdly. The next deduction that I would make from the details of this case, is relative to the quantity of sugar which Hardy voided in his urine. Now, while the *per-centage* amount of that substance underwent but a trivial alteration, so that any given quantity of his water may be said to have contained nearly as much sugar on any one day as the same measure did on any other day; still, it must be remembered that the urine diminished greatly in the amount daily passed, and consequently the aggregate mass of sugar eliminated, and probably, also, generated, must have diminished in the same direct proportion. Take, for instance, these examples:— On the 22nd of November, 11 pints (176 ounces,) of urine were passed, and they contained 6.07 ounces of sugar; on the 30th of the same month, 6 pints and 12 ounces (108 ounces in all,) of urine were voided, containing about 2.60 ounces of sugar; and on the 15th of December, 4 pints 8 ounces (which equal 72 ounces,) of urine were evacuated, containing little more than 2 ounces of sugar. We conclude, then, that while the urinous solution of sugar has been of pretty much the same strength, and with little variation, still the amount of that solution has greatly varied.

4thly. And lastly, I would say, that the addition of a *little* amylaceous food to Hardy's diet appeared to produce but little unfavourable effect; there was, however, a slight increase of urine, and the pulse was more rapid; but the extreme comfort he derived from a small quantity of vegetable food more than counterbalanced the trivial consequences it produced.

[Bowles, the other patient, was subjected to the same plan of treatment as Hardy; but during its course, phthisical symptoms manifested themselves, and he died. Dr. Todd makes the following remarks in conclusion:]

1. The first inference is, the azotized dietetic plan of treatment is efficacious; that the patients were more benefited by it than by any other means; and that the admixture of a small quantity of vegetable food did not very materially interfere with its favourable operation.

2. The evidence furnished by these cases is opposed to Bouchardat's theory, that the sugar is wholly derived from amylaceous food, and is little, if anything, short of a refutation of it. Take, for instance, Hardy's case; when he was put into the solitary ward he was deprived of all amylaceous food, and yet he still continued passing from two to three ounces of sugar daily. But it may be said that this was furnished by the greens, which he then took; this however could not be the case, for they would hardly weigh as much as the sugar that was evacuated; but there was one period in which he did not even take greens; he took no vegetable food whatever, but lived entirely on meat, and that deprived of fat as much as possible. This period was from the 15th to the 24th of December; notwithstanding, however, this total exclusion of all vegetable matters from his diet for nine days, he evacuated in that time from twenty-five to thirty ounces of sugar, and his own bodily weight was all the while increasing. Whence, I would ask, could all this sugar have been obtained? The same circumstances occurred in Bowles's case, though not, perhaps, to so striking a degree.

3. The great increase of the power of the stomach is truly remarkable; these men found no difficulty in digesting four pounds of meat, besides several eggs, in one day, a task about twice as great as any ordinary stomach could perform. The highly developed condition of the mucous membrane of the stomach was, no doubt, associated with this exalted power of digestion, and probably exists in all these cases.

4. The fact, that sugar could not be detected in the substance of the kidney, goes to show that it is not there secreted, that it does not enter into any organic connection with the elements of the kidney, but merely percolates in solution through it; hence the disease of the kidney must be secondary. The sugar doubtless reaches the kidney in solution in the blood, and there acts upon that organ as a diuretic, passing possibly dissolved in the water that filters through the Malpighian bodies, and not being attracted from the blood through the walls of the tubes.

5. The comparative conditions of the epithelium of the liver and kidneys are very singular, and I am not aware that a similar observation has been previously made; it would tend to show with what avidity all carbonaceous matters, fat as well as sugar, are directed to the kidney, in this disease. Most probably, to some extent, the fat of the liver goes, in common with fat from other parts of the body, to the formation of sugar; but this does not account for the deposition of fat in the epithelium of the kidneys.

Lastly, these cases justify the conclusion that this disease is essentially one of the primary organs of digestion, whereby all substances readily convertible into sugar are quickly so converted; and that sugar is not digested, but passes into the blood unchanged, whence it is rapidly eliminated by the kidneys. We must not forget that this was, in fact, the view taken of this disease by Dr. Rollo, an English physician, who was the first to suggest the plan of treatment, which all experience proves to be the most beneficial.

Provincial Medical and Surgical Journal, June 28, 1848, *p.* 337.

63.—*Ergot of Rye in Retention of Urine.*—By Dr. Allier.—In a paper by Dr. Allier, of Marcigny, on the use of the ergot of rye in the treatment of the divers kinds of retention of urine, the following conclusions are laid down:—

1. The ergot restores to the bladder its contractility, impaired by an immoderate distention of its coats.
2. It has acted in this manner when all other means had failed.
3. Paralysis of the bladder, resulting from cerebral hemorrhage, has promptly given way on the use of the ergot.
4. The ergot has had no effect on the paralysis of the limbs resulting from apoplexy.
5. The secale is just as efficacious in vesical paralysis, when the lesion of the nervous centres is not clearly established.
6. Paralysis of limbs depending on such lesions has not been benefited by the ergot.
7. This substance shortens the duration of vesical paralysis, which, by the use of the catheter, is generally removed in a period of time which may vary considerably.
8. It has no effect in retention of urine resulting from enlargement of the prostate gland.
9. It acts, in such cases, by increasing the contractile power of the bladder, without causing the prostate to diminish in size.
10. Once in fourteen times the ergot has had no effect whatever; this occurrence happens in pretty much the same proportion with the most approved remedies.
11. As the effects of the ergot are rather evanescent, it should be administered in small and often repeated doses.
12. The dose may be raised to seventy-five grains a day.
13. It is useful to give it afterwards in decreasing doses, for eight or ten days after the cure, to render the latter more certain.
14. The phenomena produced by the stimulating action of ergot upon the nervous system, although generally not of an alarming description, are sometimes, however, so intense, as to render it prudent to suspend its use for a few days.
15. Thus it appears that we possess in the ergot, when systematically administered, an agent capable of curing vesical paralysis, which, in some instances, after a longer or shorter time, may yield to other means, but which is generally looked upon as incurable, often producing that sad and disgusting infirmity—incontinence of urine.

Lancet, July 29, 1848, *p.* 128.

SURGERY.

FRACTURES AND DISEASES OF BONE.

64.—ON THE TREATMENT OF UNUNITED FRACTURE BY SUBCUTANEOUS PUNCTURE.

By Professor Miller, F.R.S.E., &c.

When the principle of "subcutaneous incision" came into use, the idea struck me that this important addition to surgery might be made available towards the remedy of ununited fracture; and accordingly I proposed (p. 692, *Principles of Surgery*, 1844) "that a strong needle, having been passed obliquely down to the part, should have its edge freely moved about in all directions, so as to cut up the ligamentous bond of union, as well as the dense investment of the ends of the bones; the needle being then carefully withdrawn, and the puncture covered by isinglass plaster. The parts will probably be reduced to a state very similar to what attends on ordinary fracture at the first. A pouch of blood will form; the blood will be absorbed; fibrin will take its place; inflammation being absent, the plasma will become organized, and probably form an excellent imitation of the ordinary provisional callus; while, at the same time, secretion and organization may advance from the ends of the bone; and consolidation, as by definitive callus, be completed.

The connecting materials of the "false joint" are disrupted and excited, not destroyed. They are valuable towards the formation of bone, when brought into and maintained in a state of moderate vascular excitement. "A state of active hyperæmia generally precedes the osseous transformation of the fibrous, cartilaginous, and fibro-cartilaginous tissues. M. Rayer observed, that when he excited an artificial irritation in the fibro-cartilage of a rabbit's ear, the part was at first softened; a yellow matter was next deposited in its texture; and, finally, a calcareous deposit was formed, and a true ossification produced. M. Cruveilhier likewise observed different portions of periosteum, ligaments, and cartilages, pass into the osseous or ossiform state, under the influence of different stimulating applications."—*Andral.*

[Professor Miller then relates several cases in which this practice has been adopted. The first bears upon the subject only by analogy, being one of ruptured tendo achillis, of six months duration.

In this case the ends of the tendon and the intervening parts were lacerated by means of subcutaneous puncture, and the process repeated in between two and three weeks. In about nine weeks after the first operation, union was tolerably perfect, and the patient was allowed to walk with a shoe having a heel of cork three inches high, a slice to be removed every second day: she was shortly afterwards discharged cured. The second case was that of a man with ununited fracture of the jaw.]

He had sustained fracture of the lower jaw at two points; near the symphysis and at the angle. The anterior fracture had united in the ordinary time and way. The posterior was still moveable; and on that account he sought the aid of the hospital. There was also slight overlapping of the fractured ends. I punctured the part freely from the mouth, and, having readjusted the bone as well as I could, applied a tightly-fitting pasteboard splint, retaining it by bandaging. At the end of ten days the parts were decidedly firmer; the patient described his sensations in the jaw as much more satisfactory; and I had become very hopeful of a successful issue. Some days later all was still well and promising. Then, however, the poor fellow was seized with virulent small-pox, and died. Unfortunately, an examination of the parts after death was not obtained.

[In the next case there had been fracture of the tibia and fibula, six weeks previously; the fibula was quite united, but the tibia moveable.]

On the day after admission, the ends of the tibia were freely stirred up with the needle, introduced at a fresh point for each fragment; a compress was applied over the punctures; and the limb was put up in starched bandages, with a pasteboard splint on the outer side.

On the 7th of October he was seized with a dysenteric attack, but had recovered on the 14th. On that day a second splint was applied on the inside of the limb. On the 20th, he "states that he feels more strength in the limb."

On the 28th he felt certain that the fracture was tolerably firm, and was extremely desirous to return home. He was accordingly dismissed, with directions to come back in three weeks. The original bandaging had never required to be undone.

On November 28th he again presented himself at the hospital; and, on the bandages being removed, the fracture was found completely consolidated. As a precaution, however, light retentive apparatus was re-applied, with a recommendation that he should wear it for a fortnight or three weeks longer. This he promised to do.

From my friend, Dr. Greig, I lately learned that the cure had proved quite satisfactory, and that the patient soon came to walk on the limb very stoutly. Perhaps, however, in one sense, it had been better otherwise; for, shortly after having resumed his duty,

his walking led him, on a dark night, along the brow of a precipice; he missed his footing, fell, and was killed on the spot.

[Another case was compound fracture of the humerus.]

Robert Anderson, aged twenty-three, sustained a severe compound fracture of the right humerus, at it its upper third, in May 1846. He was not under my care at that time. He stated that the bone was much injured and protruding, and that at least three inches of it, including the entire thickness, was sawn off at the time of reduction; no union occurred; and when he presented himself to me, on the 23d of September following, the limb was quite useless, moveable as a flail, and a large unoccupied space could be felt between the ends of the bone, these latter feeling attenuated, and rounded off at their extremities.

Here there was not only a want of union between fractured ends, but also a vast deficiency of space to fill up; a very unpromising state of matters under any treatment. However, though far from sanguine of success, I resolved to practise the subcutaneous puncture; the patient *might* be benefited thereby, and could not be made worse; the practice, by failure, would not be disgraced, and even a partial success would tell greatly to its credit. The needle was used, and splints carefully applied; after some weeks, puncturing was repeated, and the patient sent home. At long intervals he has come back, and had the operation repeated four or five times in all.

On the first use of the needle, I had a difficulty in bringing the instrument's point in contact with any thing like bone, even at the extremities of the shaft; and the intermediate space certainly did not contain a particle of earthy matter. On the next introduction, the ends of the bones were more readily and distinctly rubbed against; and, in the intermediate space, spicula of earthy matter jarred plainly against the instrument. On each successive introduction, the presence of bone, in process of formation, became more and more distinct. On the last occasion the needle had not to seek for bone, as it were; but at once came in contact with it.

He is now in the country. On his return I shall advise him to remain in the hospital, with the double view of repeating the puncturing at much shorter intervals, and securing a more thorough immunity from motion in the limb than could otherwise be obtained. I think that hitherto the stirring up has been performed too seldom, and that the chance of procuring ossification will be materially strengthened by maintaining a more constant excitement in the parts.

[In conclusion, Professor Miller observes that while these cases (with another which he relates) do not offer conclusive evidence in reference to the practice in question, they ought to induce the profession to give it a fair trial. He says,]

It is surely better—though somewhat like—the practice of John Hunter; whose treatment of an ununited fracture of the humerus,

Mr. Samuel Cooper tells us, was as follows:—"There was an artificial joint, and he made an incision into it; and then, having introduced a *spatula*, he irritated the whole surface of the artificial joint. This brought on considerable inflammation, which ended in anchylosis, and the patient was cured." The subcutaneous puncture and the needle, if they are likely to obtain the same ultimate result, are surely preferable to the incision and the spatula. White's severe operation of cutting down, and sawing off the ends of the bones, was not only hazardous to life, but not unfrequently failed to accomplish the end in view; in some cases it proved fatal. Dr. Physick's seton is less formidable than the saw; but chance of failure with it is not slight; and in fractures of the lower extremity, indeed, its success may be regarded as only the exception to the general rule. Mr. Amesbury's pressure has not come into vogue; but is rather looked on as painful, irksome, and uncertain. Of Dieffenbach's pegs I have no experience; but I am quite sure that the insertion of them must in most cases prove difficult, and their presence in many dangerous. Lately Mr. Burman has employed galvanism as an exciting agent, and with success, in the case of an ununited fracture of the tibia of fourteen weeks' duration. There were other means at work, however; namely, an improved diet, and constant firm pressure on the fractured ends. It may have been the galvanism alone that moved the plasma and its organization; but many perhaps will be inclined to rank that agent rather as an adjuvant than as a principal. To the method by subcutaneous puncture it might prove a powerful auxiliary. The simultaneous use of both is not incompatible; and, in these days of chloroform, the frequent repetition which either may require, cannot be considered as cruel and objectionable. From neither, conducted with ordinary prudence, can risk of untoward casualty be suspected.

Of course, in no case is local treatment exclusively to occupy our attention. Constitutional management must never be overlooked; and often it proves of the highest importance.

Further, I may add, that the foregoing observations are not intended to apply to those cases where non-union is obviously dependent on the impaction of a slip of muscle between the fractured ends, or to the presence of a piece of dead bone, or to the lodgment of a foreign body from without. In such cases, immunity from motion, with attention to the system, after removal of the cause, is usually sufficient.

Monthly Journal, June, 1848, *p.* 841.

65.—*On the Treatment of Fractures of the Thigh in Infants.*—By E. F. Lonsdale, Esq., London.—[It is well known how difficult it is to get a fracture of the thigh in infants united without shortening, and curving forward of the femur. Mr. Lonsdale, however, suggests a plan by which this difficulty may be obviated. He says:]

The treatment generally followed for these cases, and the one that I have hitherto employed myself, is to keep the limb in the

extended position, by using long lath splints, extending from the hip down to the foot. (I am convinced that short ones, applied to the thigh only, cannot keep the ends of the bone in apposition.) The splint in the front should be the longest, and be made to pass up before the hip-joint as high as the crest of the ilium. A thick pad is placed on the upper portion of the thigh bone. Great pressure, however, is required to insure the effectual action of the splints, as well as the necessity of keeping the child in the horizontal position, a position that is difficult and irksome in infants, more particularly during nursing.

Meeting with these difficulties, I turned my attention to the possibility of treating these cases by the flexed position, and have been enabled to do so by the following simple means, which, in the case of a child twelve months old, recently under my care, answered most satisfactorily; the correct apposition of the ends of the bone being preserved at the same time that the position of the child was less constrained and awkward.

I employ two narrow long strips of sheet iron, an inch wide, and thin enough to allow of being easily bent at any angle required, though sufficiently thick to bear the weight of the limb without yielding. They are applied as follows:—The child is placed on its back, and an assistant holds the limb in a position so as to flex the hip and knee joints, the angle of flexion being similar to that employed when the inclined plane is used for adults. The two thin iron splints are then bent at angles corresponding to the hip, knee, and ankle joints, to adapt themselves to the limb, in the position in which it is being held by the assistant. An important point to attend to is the proper length of the splint. The upper one should be long enough to pass up in front of the hip-joint, to lie flat on the lower part of the abdomen, and to extend down over the instep to the toes. The back one should extend up behind the buttock, being curved to fit its shape, as high as the posterior margin of the crest of the ilium, and long enough to extend down behind the heel to the sole of the foot. If the two splints are bent at proper angles, to correspond with the shape and position of the hip, knee, and ankle-joints, they will, when firmly bound to the limb, keep it in the position required, which is one that most favours the correct apposition of the ends of the bone, by relaxing all the muscles. The limb must of course be evenly rolled before applying the splints, and the splints themselves be padded. The upper ends of the splints are to be firmly fixed to the pelvis, by passing the bandage many times round them, and occasionally reversing the direction of the bandage round the ends of the splints themselves, to prevent them being displaced laterally.

Medical Gazette, Aug. 4, 1848, *p.* 203.

66.—ON THE MECHANICAL TREATMENT OF CURVATURES OF THE SPINE.

By John Bishop, Esq , F.R.S., Surgeon to the Northern Dispensary.

[In the following remarks Mr. Bishop discusses the respective advantages of the prone and supine positions. He says:]—

In inflammatory states of the intervertebral substance, and in caries of the vertebræ, which always require that the parts affected should be relieved from superincumbent pressure, and kept in a state of rest, there can be no doubt that the recumbent posture is necessary. The tendency of nearly all invalids, when confined to their beds by aggravated sickness, is to lie in the supine posture; and this they do spontaneously when the disease is of such a nature as to render it indifferent to the practitioner what kind of posture the patient may be inclined for ease and convenience to choose. Whatever may be the immediate pathological cause of invalids thus assuming the supine position, the fact of their doing so shows that it must be the most agreeable one; but although the form and structure of the posterior surface of the body render it best adapted for reclining on, this posture cannot be permanently maintained without injury to the integuments. The position is, besides, objectionable, because it prevents access to the parts which may require topical applications, such as liniments, frictions, blisters, setons, issues, leeches, &c. This objection holds good as long as the patient is not allowed to turn on his side; but as this might be done without injuriously disturbing the affected parts, the supine position could be resumed when desirable, and the patient placed on the side when necessary. The advantages of adopting a recumbent position, and occasionally changing it from the back to the side, in organic diseases of the vertebræ, has been experienced by the author in so many cases as to justify his giving to the supine the preference over the prone posture. The result of a number of observations, without entering into details, is this—namely, that in cases of curvatures of the spine arising from disease and absorption of the bone, the distortions do not increase while the body is kept in horizontal, supine, and lateral positions; but they do increase when the body is allowed to move and be erect; and that, moreover, when patients are confined to the prone position, so far as the author's experience goes, the curve of the spine is progressive, for which there appear to be mechanical reasons.

The prone position has been recently introduced into the list of the mechanical plans of treating distortions of the spine. Under this method of treatment the patient is laid on the face on a double-inclined plane, so that the weight of the trunk is supported on the thorax and abdomen; and, accordingly, the head must either rest on the lower jaw, or be upheld by its extensor musles and ligaments; the play of the ribs and of the abdominal and thoracic muscles and viscera is restricted, and after a time the thorax itself is flattened, and the digestive, respiratory, and circulating functions are more

or less impeded. The advantage derived from a prone position, as a set-off to these grave evils, is the facility of making topical applications. Mr. Liston observes—"Perhaps the prone position, about which so much has been said lately, is the most favourable, as it takes pressure off the diseased parts, and prevents the carious bodies of the bones from falling upon one another, It also assists the return of the blood from the numerous veins contained in the vertebræ and in the spinal cord."

Now if all the advantages just enumerated really existed, we should then have to consider, not only whether they counterbalanced the injuries sustained by this system, but also whether either the supine or prone position ought to be continued throughout the whole treatment of organic diseases of the vertebral column.

[After observing that when patients affected with ordinary lateral curvature have been kept in the recumbent posture for months, it is frequently found that the moment the erect posture is resumed, the curvature reappears as before, Mr. Bishop says:]

It is manifest, that lateral curvature of the kind above mentioned should not be treated by laying the patient for lengthened periods in the recumbent posture. In the first stages, when no abnormal change has taken place in the bones and cartilages, and a tendency is perceived in the young and delicate to assume any position prejudicial to the figure, accompanied with a sense of weariness after standing and walking, the patient should resort to a recumbent position, and lie on a firm mattrass or couch for some time every day, according to circumstances, as long as may be required; not with a view of curing the lateral curvature of the spine, but in order to rest the body, so that the patient may not be induced to assume the attitudes which produce this form of distortion when standing. When the spine is affected with caries of the bodies of the vertebræ, the recumbent posture is indispensable, and no machinery adapted to prop, push, or stretch the body that has ever been invented will be efficacious in the treatment of these cases. When the patients are laid in a recumbent posture on the first appearance of organic mischief, the amount of distortion is greatly diminished. Much depends on the care and manner in which this reclining is carried out; the more nearly the body lies in the horizontal plane the better, for important reasons. When the headpiece of a triple-inclined plane is raised to an angle scarcely sufficient to allow the patients to see horizontally, they have a constant tendency to raise the head above the plane, by which means the bodies of the affected bones are irritated and pressed on; if, therefore, this is observed, it will be necessary either to lay the patient perfectly flat, or to confine the head to the plane, according to circumstances. The nearer the trunk is laid in a horizontal posture, the less from the direction of the great dorsal curve will be the pressure on the bodies of the dorsal vertebræ; and if the mischief is in the lumbar region, it will be necessary to adapt a support to the lumbar curve.

The same may be observed when the disease affects the cervical vertebræ; indeed, a person conversant with the figure and mechanism of the spine may easily release any portion from injurious pressure, by adapting the surface of the couch to the circumstances of the case, without having recourse to the barbarous stretching machine of the English and French schools. This end may be accomplished by considering the spine as a bent lever, and causing it to rest on a point, as a fulcrum, opposite the parts requiring relief; the weight of the body itself then acts at each end of the lever, and exerts a mechanical force quite sufficient to release from pressure the parts affected with organic disease.

The progress of lateral curvature not originating from organic disease, may be divided into three stages. The first comprehends those cases where the curvature depends upon attitude, or the presence of extraneous force, without having produced any altered figure of the vertebræ, or absorption of inter-vertebral cartilage. The second comprises those cases in which the curvature results from a slightly altered figure of the vertebræ and cartilages, in very young and growing persons, the bones not being yet sufficiently hardened with their due proportion of earthy constituents, and where the curvature is produced by extraneous forces. The third embraces cases of long duration, in which the vertebræ have assumed an altered figure, and have become hardened by an increased supply of earthy constituents; the persons are of a more advanced age, and the body has acquired a position of equilibrium corresponding to the distortion of the spine. The great objects to be kept in view by those who have the management of children are, to see that none of those causes which produce ordinary lateral curvatures be suffered to act, and to attend to the physical condition of the body in the earlier stages of development.

It is from the neglect of these precautions that children fall from the primary into the secondary stages of lateral curvatures. When the vertebræ and inter-vertebral cartilages lose their natural figure, the body assumes a new state of equilibrium, in which the spine is curved laterally, and often twisted spirally; and if time be allowed for the vertebral bones to grow and become hard, while the body is thus distorted, the patient falls into the third stage, in which no mechanical treatment will restore the parts to their normal figure. In order to rectify lateral curvatures of the spine with the greatest certainty and least loss of time, they should be taken in hand as early as possible in the first stage, before the vertebræ change their normal figure, when a clear perception of the cause will enable any person acquainted with animal mechanism to remedy the mischief; and the practitioner will be enabled to effect in a few weeks a cure for which probably years would not suffice if the disease were neglected at this time. In the treatment of the second stage, we have first to ascertain the immediate cause of the distortion, and the nature of the extraneous force acting on the spine; whether it be in the body or external to it; and when the nature of the force is considered, whether it be constant or intermittent, avoidable or una-

voidable: we can then determine the means of counteracting it; but without this previous knowledge, any attempt to restore the patient must be empirical. It is of fundamental importance to provide means that will put the body into a state of equilibrium, with the spine erect. This should be effected by putting the patient into the proper attitude, if practicable, by means of the muscles themselves.

When the cause of the curvature is external to and independent of the spine, it is quite clear that the measures to be taken to remedy the defect must also be external to the spine. By taking such measures as the nature of the force impressed requires to counteract its effects, the spine will soon regain its normal figure in the secondary stage, without the aid of instruments of any kind applied immediately to it. The treatment of the third stage of lateral curvature is quite another thing. Now, although we know that bones will, at any period of life, change their form under certain circumstances, yet when persons have suffered the distortion of the spine to remain many years uncounteracted, until they have ceased growing, it naturally remains permanent, and years of treatment, however scientific and well adapted to relieve the patient, will most probably fail. Such being the result of neglect, it is incumbent on all those who have any interest in the treatment of these affections to begin in the earliest stage, or, at latest, in the secondary stage, when success is almost certain; and not to allow the patients to fall into the third stage, when they become the subjects of experiments which usually only torture them, at the expense of their health, time, and money. While very great attention, with very unsatisfactory results, has been paid to curvatures of the spine, very little has yet been done with respect to curvatures of the lower extremities, and their influence on the rest of the body. As unequal curvature of the legs, although they may be equal in length, must, if neglected, produce curvature of the spine, it surely becomes of importance to attend to those organs, since they support the whole body. In a large number of cases, surgeons have attempted to remedy distortions of the spine by machinery, when the origin was to be found in the state of the lower extremities—thus attending to the effects rather than to their causes. When the shafts only of the long bones of the legs become distorted, they sometimes do, and at other times do not, regain their normal figures; but it often happens that in children the shafts are not only curved in more than one plane, but are also curved unequally, and then they walk very badly; if this is suffered to go on, the spine participates in the distortion, for reasons which have been already explained. If the curvature of the legs occurs at the knee-joint, and there results an eccentric movement of the leg upon the thigh, this form of distortion does not recover spontaneously, and does not admit of being cured, unless it be taken at an early stage.

There has existed in the minds of many surgeons a repugnance to the application of irons for supporting the legs of children, on

two grounds: first, on the supposition that the legs get straight spontaneously; and, secondly, that the weight of the irons is objectionable, and entails a continual expense to keep them in repair. Those who take this view forget that in standing the weight of the iron rests upon the ground, and that in walking the force of gravity swings the irons, as it does the legs themselves, with but slight muscular exertion; indeed, so far from their being an incumbrance to the wearer, they are of very great assistance. Most weak children walk much better and firmer with than without them; and the author has seen many children who refuse to part with their irons, and weep when deprived of them. With regard to their breaking, much depends on their original strength and make: the force impressed on them, and the friction at the joints in walking, requires them to be well made, and their strength adapted to the age and power of the patient. Mr. Amesbury and Mr. Tamplin recommend that there should be no joint in the iron at the knee; but if the leg be kept constantly extended in walking, it tends to distort the trunk in the same manner as a wooden leg interferes with the natural movements of the body, and it is therefore very prejudicial. The iron should be constructed so as to allow of all the natural movements of the limb, and, at the same time, to give it efficient support. This cannot be accomplished without having joints corresponding with those of the hip, knee, and ankle. It is strange, that while nearly all surgeons admit the propriety of supporting the spine, so many of them should deny the use of supporting the legs—especially since the office of the latter is to support the whole body, and of the former, only a portion of it. When the legs bend it is really because they are not able to bear the weight of the body. Not so with the spine, which is able to support itself but which must conform its position to the condition of the legs. Therefore to prop the spine, which is curved by the state of the legs, is just as if a person who has the foundation of his house defective, which causes the superstructure to incline, should attempt to remedy the evil by propping the upper parts, and neglecting the repair of the foundation which is the seat of the mischief. An architect would be called insane were he to adopt such means for such an end; yet this is precisely analogous to the plan of propping the spine, and neglecting those defective states or malpositions of the lower extremities which give rise to the greatest number of cases of lateral curvatures.

Lancet, July 1, 1848, *p.* 7.

67.—*On the Difference between Syphilitic and Scrofulous Affections of Bone.*—By M. Ricord.—[M. Ricord enumerates the following points of difference.]

Syphilitic Affections of Bone.	*Scrofulous Affections of Bone.*
1. Very rare with young people	1. Very frequent in youth.
2. Syphilitic precedents.	2. Scrofulous precedents.

3. Compact texture of bones attacked.	3. Spongy or cancellated texture of bones attacked.
4. Superficial part of the bone.	4. Deep parts of the bone.
5. Little tendency to hyperostosis.	5. Much tendency to hyperostosis.
6. The pains which precede the development of the affection increase and become very intense, until they decrease again, and entirely disappear in the later periods of the disease.	6. The tumefaction precedes the pain, but the latter soon increases and becomes more and more intense as the disease advances.
7. A tendency to circumscription	7. A tendency to diffusion.
8. Exostosis.	8. Hyperostosis.
9. Tendency to ossification and eburnation, but very little to suppuration.	9. Tendency to softening, to suppuration, caries, and necrosis, and not to ossification.
10. A chain of syphilitic symptoms, either concomitant or antecedent.	10. A chain of scrofulous symptoms widely differing from those of syphilis, either concomitant or antecedent.
11. Rapid cure under appropriate treatment.	11. Very difficult cure, often incomplete, and sometimes impossible.

Syphilis may, however, be superadded to scrofula; we must then, in combating any lesion, endeavour to find out to which of the two diatheses it is mostly owing, and select our therapeutic means accordingly.

Lancet, June 10, 1848, *p.* 628.

68.—*Case of Scrofulous Disease of the Knee, treated by Sulphur and Electro-Galvanism.*—By F. A. Bulley, Esq., Surgeon to the Berkshire Hospital.—[This was a case of scrofulous enlargement of the knee-joint, occurring in a young woman, the swelling being of three months' duration. The general treatment consisted in the administration of small quantities of the purest *sulphur*, combined with carbonate of iron, nutritious diet, and such open-air exercise as the case would admit of. And the local applications were, first, hot poultices to relieve the pain, next compression by means of strips of iodine plaster and a bandage, and then the hot water douche. When she had been about sixteen weeks under treatment Mr. Bulley began to use electro-galvanism. He says,]

After the electro-galvanism had been applied every other day for a fortnight or three weeks, I could observe a very perceptible alteration in the shape of the affected joint, the more than natural quantity of synovial fluid which remained in its cavity up to the time she left the hospital having become absorbed; and I could plainly perceive that the rounded appearance occasioned by the more

solid deposit in the ligamentous tissues was gradually becoming less and less apparent, until at the end of about five weeks from her leaving the hospital, it had almost completely disappeared, and she could walk about upon the limb without any particular pain or stiffness in the joint, which, by admeasurement, did not exceed to any appreciable extent the size of the other knee; it was, in fact, evident that the morbid deposit, which I could have no doubt was of the same solid character as usually accompanies the more advanced forms of scrofulous exudation, had been absorbed and taken away by the processes employed.

Observations.—I have been somewhat minute in noticing the foregoing case, because it afforded me a particular opportunity of observing the *modus operandi* of the different local remedies which I employed for its relief, as well as of witnessing their issue in at least a partial recovery from the disease. The poultice, which seemed to act but slightly upon the part, further than by relieving the pain, was followed by the iodine plaster, which, aided by gentle pressure, produced a very perceptible change in the patient's disease; afterwards the hot pump-bath was used, and from this she derived very great relief; and last of all, the electro-galvanism, which effected its all but complete removal.

The effect of the sulphur, as administered in the foregoing case, was manifestly to accelerate the capillary circulation, the patient feeling, as I have often observed in similar cases, a degree of warmth in her extremities, and particularly in the affected part. Shortly after taking it, as she herself expressed it, the medicine "seemed to go to the part and search it," which I could not but attribute to its action on the blood, by increasing the activity of the circulation; and I have been informed by patients who have visited Paris, Barege, the Eaux Bonnes, and other places, for the purpose of taking the natural sulphureous waters, that they have frequently experienced the same sensations of warmth after taking them even in moderate doses—a circumstance which would render great caution necessary to avoid excess in the quantity taken, as tending to apoplectic fulness, and an injurious determination of the blood to internal organs, which sometimes follows their immoderate use.

The particular part which the sulphur naturally existing in the economy may be said to play in the production and sustenance of animal heat, it is impossible accurately to determine; but it is certain that, especially in the earlier periods of scrofulous disorder, where the disease is characterised by general coldness of the extremities and cutaneous surface, vast quantities of this substance are sometimes separated from the mass of the blood in the form of sulphuretted hydrogen gas, as well as in that of sulphur uncombined, as is easily proved by chemical experiments, but more obviously and simply by a circumstance which cannot but have been observed by every one who has paid any attention to strumous diseases, which is, that the matter of the discharges from scrofulous abscesses and sores combining with the lead commonly used in

medicated plasters, almost invariably turns them of a blackish colour, the result of the production of sulphuret of lead: thus clearly showing that sulphur is in this manner discharged from the system during the progress of these disorders. The occasional excessive production of cystine also in the urine, which is stated by Dr. Golding Bird to be strongly indicative of the scrofulous diathesis, is another proof that, as this substance contains no less than twenty-six per cent. of sulphur, large quantities must be thus parted with in these diseases.

Assuming, therefore, for the purposes of practical experiment, that the presence of a due quantity of sulphur in the circulating blood has something to do with this maintenance of the animal heat, and, *vice versa*, that from the want of it (as there must be where so much of it is in these ways discharged from the system) the temperature of the body is kept below the natural healthy standard, I have exhibited it in almost all the cases of scrofula which have lately come under my notice, with a view to ascertain if the restoration of this important element to the blood is really capable of restoring the defective animal heat in these disorders; and the result of my observation has been that it seems either directly or indirectly, in some degree to operate in this manner; and I have every reason to believe that when carefully and assiduously administered in small doses, insufficient for an aperient effect, it is a most valuable and efficacious remedy for the treatment of scrofulous diseases.

The form in which I have usually administered it is as follows:—

℞. Sulphuris purificat., gr. v. ad x.; syrupi simp., ʒj.; aquæ, ʒ vij. bene terendo ft. haust. To be taken once or twice a day in a tumblerful of new milk. It is occasionally combined with a slight chalybeate.

To ensure its best effects, I have exhibited it in its purest state, as completely freed as possible from the sulphate of lime, with which it is usually largely adulterated, and to the presence of which the more common specimens in a great measure owe their aperient quality, especially the commonest and impurest of all, the sulphur vivum, as it is vulgarly called, which, from this circumstance, is in great repute among the poor as an effective cathartic; the presence of this substance, however, in these commoner kinds of sulphur would render them of little service in the treatment of scrofulous disorders, in which it is necessary, to ensure its beneficial action, that the remedy should find its way into the mass of the blood, which it is not able to do, or at least very slowly and imperfectly, when by reason of its adulteration, its principal action is upon the intestines. I have generally found that in a short time after the commencement of this treatment—coupled with other important hygienic means which it is unnecessary to mention, further than that they have comprised pure air, wholesome and nutritious food, and gentle and well-regulated exercise—the action of the heart, previously feeble, has become altered in its strength, and that the extremities and cutaneous surface, which a little time be-

fore were habitually cold, have recovered a certain degree of permanent warmth which has manifestly aided the removal of any local scrofulous affection to which the patients submitted to this treatment have been subject. It has appeared in every case to act by stimulating the heart to a more healthy action, and has thus necessarily produced a corresponding vigour of the capillary circulation, upon which it would seem that the successful treatment of local scrofulous disorders principally depends.

Medical Times, May 27, 1848, *p.* 54.

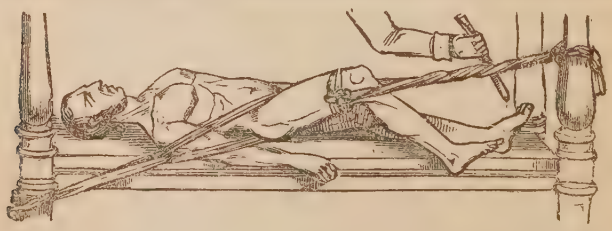
DISLOCATIONS.

69.—ON DISLOCATION OF THE THIGH.

By W. N. Spong, Esq., Aylesford.

[Mr. Spong suggests the following method as applicable when the ordinary apparatus and assistance cannot be obtained.]

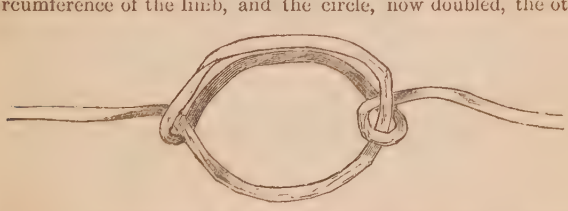
The requisites are, two or three strong narrow sheets; one to fix the pelvis in the ordinary manner, the other to be employed for the purpose of extension, as follows:—The middle of the sheet, rolled up into a flattened rope, is to be applied immediately above the knee by means of the noose, which will be presently described, and the two ends brought forward, are tied to any immoveable object. A common bedstead answers for the employment of this method extremely well. The sheet that fixes the pelvis is to be firmly tied to one post; the other fixed to its opposite. The sheet by means of which extension is made will be seen to be double, and the mechanical power is gained by placing a short lever, about eighteen inches or two feet in length, (any stout piece of stick answers for this,) between the two ends of the sheet, midway between the knee and



the object to which this sheet is tied, and proceed to twist them, until the requisite degree of extension of the limb is attained. By this means vast power is brought into play, far greater than can ever be required for the reduction of a dislocated femur.

Extension can be performed slowly and regularly by the surgeon himself, or immediately under his superintendence. It is also well sustained; and if at any point of time, during the process of extension, he desires a sudden relaxation, it is effected immediately by releasing the lever—the sheet untwists itself, and the object is attained. The lever should be tied to the sheet previously, or its sudden rotation will throw it out with violence. Before extension is made, everything should be brought as tight as possible; and to prevent either of the knots slipping, it is well to tie them over with twine or tape. For the same purpose the sheet should be rendered damp at that portion which encircles the thigh, and also where the knots are placed, previously to tying them: the common surgeon's knot will be found to answer best.

The noose is applied, as usual, immediately above the knee, embracing the condyles of the femur; it is simple and instantly made, nevertheless, not so easily described in writing; it somewhat resembles the clove hitch, but has this advantage,—the two points from which extension is made can be placed either on opposite sides of the limb, or can be approximated so that the extending power shall act on one side of the limb only; moreover, it cannot slip, and its constrictive power is only just sufficient to maintain its position. It is made by taking the centre of the sheet, and forming a circle whose diameter shall be that of the limb; that portion of the sheet which is held in the right hand is passed over the left, outside, and brought up through the circle, in the form of a loop; the limb is passed through this loop, which is then drawn tight. It will now be seen that the loop embraces one-half of the circumference of the limb, and the circle, now doubled, the other.



For the sake of example, this can be readily applied to the thumb by means of a piece of tape, and its use will be demonstrated. Such points may appear of minor importance, but in the time of need they are of moment, for in most operations, success too often depends upon attention to minutiæ. A rope, for the purpose of torsion, answers very well, but of course a sheet must be employed for the noose; altogether, it is best to have the whole formed by the sheet alone, and if one is not long enough, two must be used.

In all cases of reduction, the amount of power is measured more by the effects than its degree, it being the part of the surgeon to direct its application and limits with the usual adjuvants such as bleeding, tartar emetic, &c. If it is necessary to carry the torsion

to an extreme degree, it may encroach upon the knee, and constrict it somewhat; to prevent this, the end of another short lever may be placed between the sheets, previous to the commencement of torsion, and allowed to revolve a turn or two, it must then be held firm, and will effectually prevent any further encroachment towards the knee.

In the most common dislocation of the femur—that upon the dorsum ilii—the limb is shortened from an inch and a half to two inches and a half, the bone has therefore to be extended to that degree, or a trifle more, to get it over the edge of the acetabulum, and the amount of shortening caused by torsion of the sheet can be made to far exceed this; nevertheless, care should be taken to bring everything as tight as possible before torsion is commenced. A convenient pad is formed by doubling a napkin so as to make it a fourth of its size, and then rolling it up diagonally, which forms a pad, tapering towards each extremity; this is to be enclosed in that portion of the sheet employed to fix the pelvis, which passes between the pudendum and thigh.

The advantages of this method are that it can be used at all times, and under all circumstances, while the extending power can be regulated to a nicety. So efficient is it, that I would prefer it to the pulleys, which certainly have a somewhat barbarous appearance as applied to the human frame; and again, that surgeon will better exhibit his resources, who can convert such household goods as sheets and bedframes into the appliances of his art, than he who is powerless without his plenitude of rope, pulley, and set and appropriate apparatus.

Two kinds of household sheeting are met with; one, very broad; the other, narrow. This latter is the cheapest, and is most frequently used for domestic purposes, a broad sheet being made by sewing two narrow pieces together, of this breadth it is too bulky when rolled up, and unless a narrow one is at hand, such a sheet can be divided down the seam without injuring it.

The method above described can be applied in five minutes, and might be conveniently termed—reduction by torsion.

Lancet, May 6, 1848, *p.* 497.

70.— *On Dislocation of the Shoulder.*—By W. N. Spong, Esq , Aylesford.—For the most part this luxation is of easy reduction, but now and then it so happens that the patient is particularly strong and athletic, and the surgeon perhaps just the reverse. This being the case, his efforts may prove unavailing, and a further outlay of power be required. Supposing the common methods of reduction, as by the knee in the axilla, or the heel in the same, and extension by the hand, &c., to have failed, in such a case the same means can be applied as for dislocation of the femur, and reduction effected by torsion; or the following method will be found efficacious:—

The patient being placed on a sofa or bed, or on the floor, the heel is to be placed in the axilla, (the same as for reduction by ex-

tension at the wrist,) and a long towel, or narrow sheet, is to be applied immediately above the elbow, embracing the condyles of the humerus, by means of the noose previously described for reduction of the femur, and the two ends, brought forward and tied firmly behind the back of the surgeon, he leaning forward a little while doing so. The towel or sheet should be rendered damp at that portion which encircles the arm, and it should cross the back, low down, over the lumbar region. The knee being kept straight, or nearly so, powerful extension can now be made, as the position of body is well adapted for the outlay of great physical strength, all the powerful muscles of the back being advantageously brought into play. At the same time, the arms and hands are free, and the patient's fore-arm being bent to a right angle with the upper arm, can be used as a lever in manipulating the reduction.

If it be required, extension can be made at right angles to the body of the patient, as in employing the pulleys, by placing the hollow of the foot against the parieties of the thorax, close up to the axilla, and using extension as before: and in this position, while extension is actively maintained, the patient's body can be brought parallel with the extending power, by which manœuvre reduction will be aided. Or extension can be used with a counter-extending sheet, to fix the shoulder in the usual way, one foot being placed against the parietes of the thorax, in the axilla, the other against the side of the bed; or the counter-extending sheet; being firmly fixed, both feet can be applied to the side of the bed, the surgeon sitting on a chair.

Every surgeon, in reducing dislocation of the shoulder by means of the heel in the axilla, and extension of the wrist, has experienced how fatiguing it is; but if he employs the above means, ten times the power can be brought into play,—supposing for a moment it were necessary,—and the mere weight of the body, reclining back, will maintain the advantages already gained. So efficient is it, that other mechanical means need rarely be resorted to. Which shoulder soever is dislocated, the operator uses the corresponding heel, right or left.

Lancet, May 6, 1848, *p.* 498.

71.—*Reduction of a Dislocation of the Humerus, of Three Months' Duration.*—By F. C. Skey, Esq.—[This was a case of dislocation into the axilla, of three month's duration, occurring in a gentleman subject to epileptic seizures.]

The attempt [at reduction] was made by two consecutive operations, quite distinct in their object from each other. The first that of detaching the head of the bone from its false position, and tearing asunder the new substance, whatever it might be, that tended to retain it there; the second that of replacing it in its socket.

The patient was placed on a low bed, the body fixed by a round towel passed through the axilla, and a second round the chest, and

fastened in a line with the opposite axilla. Extension was made from the wrist by means of pulleys. The arm was drawn out from the body to a right angle, and even beyond it, and I then twisted the arm and dragged it with great force in all directions. This proceeding occupied from ten minutes to a quarter of an hour, and was attended with some pain, inasmuch as the chloroform was difficult to administer, or probably, from the caution necessarily employed, we were indisposed to obtain its entire influence before the tension was begun.

By this process, I obtained great mobility of the limb, which could now be twisted and turned in every direction. The apparatus was now entirely removed, and preparatory to its reapplication the right or affected side of the body was brought in a straight line between the two points of extension. The counter extension was effected by a short cylindrical rod of iron about eight inches in length, padded sufficiently on one side to fit into the cavity of the axilla. To each nobbed end of the rod the rope was fixed and carried upwards, the one from behind, the other in front of the shoulder, and fixed to the wall. The extension-cords were attached to the wrist as before, by means of the india-rubber bandage, now generally employed for that purpose, and extension was made by pulleys in a direction straight downwards along the line of the body. The chloroform was again resorted to, but with no great success, and, judging from the violent expression of pain that attended the subsequent stages of the operation, I do not consider that my patient was in any respect under its influence. When the extension had been continued for ten minutes, the head of the bone had obviously descended from its original position. At the expiration of twenty minutes, it was impossible to say whether the bone were reduced or not. There had been no visible sign of sudden change in the relation of the bone, and very powerful extension had been continued as long as we deemed it desirable or safe. I was the less inclined to protract his sufferings, inasmuch as, having proceeded thus far with impunity, I had inwardly resolved to repeat the attempt at reduction, should the present effort fail. The cords were now suddenly relaxed, and the arm thrown across the opposite shoulder and there bound. At this period the roundness of the shoulder appeared to be restored, and the very position the arm occupied argued the great mobility of the limb, which position was unattended by pain; but whether the head of the bone was in the socket or otherwise, it was still difficult to determine Mr. Stanley was of opinion rather that it was, than that it was not; and in this opinion I concurred. The arm was fixed in its position, with a large pad in the axilla, and I sent Mr. B. home.

On the following day I visited him, and removed the bandages, in consequence of his complaint of considerable uneasiness. As he sat up in bed with all the appliances of the previous day removed, while in the act of making what I intended to be a full examination as to the situation of the head of the bone, I raised the head freely

with my left hand, and drew it outwards, and the head slipped into the socket with a slight but very palpable shock, perceptible to my patient, to his brother who was assisting me, and to myself. I then placed a large pad consisting of a pair of worsted stockings in the axilla, and again bound the arm to the side by a long bandage encircling the arm, body, and opposite shoulder. Ten days elapsed without a return of a fit, and I entertained a hope that the operation he had undergone might prove serviceable in a medical as well as in a surgical sense, but the fit returned on the eleventh day.

Three months and three days had elapsed since the accident, and the arm was reduced on the ninety-sixth day without any extraordinary powers being resorted to in the way of mechanism, or without any draught being made on his vital powers.

[Mr. Skey attributes the successful issue of this case, first, to the means employed for systematically breaking down the new attachments of the head of the bone; and, secondly, to the direction of the extending force. He conceives that the reason why the heel in the axilla "is so efficient in the reduction of ordinary dislocations of the humerus, is that the extension is made by the surgeon in precisely the right direction, namely in a line parallel to the body."]

Medical Times, June 3, 1848, *p.* 69.

72.—*On the Force required in the Reduction of Dislocation.*—By Bransby Cooper, Esq.—The degree of violence that may be used must of course depend upon numerous circumstances,—such as the age, sex, muscular power, constitutional peculiarity, and state of health of the patient, and there are few points in surgery in which it is so difficult to arrive at just conclusions, as with regard to the amount of force that can be safely applied in surgical operations; as, for example, in reducing a hernia, or passing a catheter in case of stricture: the term force in its surgical sense is extremely indefinite in its signification, and must be always understood relatively, and not positively.

The French surgeons have attempted, in cases of dislocation, to measure the force employed in the extension, by means of an instrument applied in the apparatus: by this arrangement, although in an individual case its utility is not very manifest, they are enabled to arrive at a kind of statistical average of the requisite power, which by the consideration of the peculiarities of the case they can also apply with a degree of judgment scarcely to be attained without such an indicator of the accession of the extending force employed: the power of the pullies, without some such contrivance, may be gradually increased, to the destruction of all the tissues connecting the limb to the body, and occasionally, indeed, the most serious accidents have occurred from the injudicious application of these powerful accessories.

Medical Gazette, May 12, 1848, *p.* 796.

AMPUTATIONS.

73.—CASE OF AMPUTATION AT THE SHOULDER JOINT.

By W. Fergusson, Esq., (Reported by H. Smith, Esq.)

[A man got his arm drawn between two rollers driven by steam power, and received thereby a most severe compound fracture and laceration of the limb. In order to liberate him from the machinery, the integuments and muscles were divided a few inches below the shoulder, and he was then removed to King's College Hospital.]

His right shoulder presented a frightful appearance. The great muscles were all extensively lacerated, and the integuments were separated to a considerable extent. The bone, which had been broken across at the upper third of the arm, was lying bared of its coverings, and the axillary artery was seen pulsating on the surface of this great wound, which was at least from eight to ten inches in diameter. There was not much shock; in fact, the man was much excited by a large quantity of brandy which had been given him directly the accident happened.

He was, in a short time, carried into the theatre, and Mr. Fergusson proceeded to perform disarticulation at the shoulder-joint. The subclavian artery being compressed by the fingers of an assistant, above the clavicle, the soft parts which remained about the joint were detached, the capsular ligament was then opened from above, and the bone removed. The axillary artery was then carefully detached from the surrounding textures, and a ligature was applied. Two other vessels required tying. The torn integuments and muscles were then taken off, and as good a flap as circumstances would admit of was obtained. It was stitched together, and the patient was placed in bed, and ordered forty minims of tincture of opium, with a drachm of aromatic spirit of ammonia, in camphor mixture.

[He went on, upon the whole, satisfactorily, from the day of the operation, July 6th, until the 15th, when hemorrhage took place from the axillary artery. The following is Mr. Smith's report:—]

15th.—Ten A.M.: Still improving; wound looks very healthy; axillary artery appears to be pulsating violently. At half-past one, during the patient's efforts over the bed-pan, the above-mentioned vessel gave way, and he was instantly deluged with blood. The house surgeon was passing the ward at the time, and on the alarm being given, went to the patient, and stopped further hemorrhage, by pressing above the clavicle,—until Mr. Fergusson arrived, and placed a ligature on the artery above the spot where it had given way. The patient was much exhausted, and almost pulseless; wine and brandy were freely given him, and he gradually rallied from this condition, became cheerful, and took some nourish-

ment. At the evening visit he appeared quite tranquil, pulse 110, pretty firm; countenance not so pallid. He was ordered half a drachm of tincture of opium, and to be carefully watched.

July 16th.—At five A.M. the house surgeon was called, and found him nearly dead from another hemorrhage, which must have carried him off, had not a patient in the ward jumped from his bed, and applied his fingers to the wound. The artery was now carefully examined, and as it appeared to be perfectly healthy, another ligature was put on about half an inch higher up, and all hemorrhage thus checked. The patient was quite collapsed, pulse scarcely felt at the wrist, hands and feet cold, face bedewed with a cold sweat. Wine was liberally administered, and hot bottles were placed to the feet. He remained for three or four hours in a very precarious state; but at the end of that time he began to rally, and was able to take some jelly. He was ordered to be kept perfectly quiet. At one P.M. his father was allowed, without the knowledge of any proper authority, to go into the ward, and his presence so excited the poor fellow, that he went into a kind of convulsive fit, and hemorrhage suddenly took place again. Mr. Simon cut down quickly and skilfully upon the subclavian artery, and placed a ligature upon it; but the patient was pulseless when this was done, and he died in a few minutes.

Remarks.—This case presents features of great interest. In the first place, the nature of the injury was such as is not often met with, although mutilations of the same kind, in a less degree, are often happening to those who are employed about machinery. From the great extent of injury, and from the length of time during which the patient was kept in his horrible position, one would have expected an immediately fatal result; but the little amount of shock he sustained, and the quick rally from the effects of the accident, and the double operation he underwent, show what a vast measure of injury the human frame can support almost with impunity; and several instances of this, equally interesting to the surgeon and the physiologist, have been recorded. We are all familiar with that mentioned by Cheselden. In the museum of King's College there is a preparation of the upper extremity and scapula, which had been torn from the body of a boy, who nevertheless made a good recovery. Mr. Fergusson, in his "Practical Surgery," mentions an instance which occurred at the Edinburgh Infirmary, where the "extremity, scapula, and one half of the clavicle," were torn away by machinery, and the patient recovered. The reason probably is, that in these severe lacerations no bleeding of any consequence takes place; and this, as the youngest student knows, is the result of the vessels being lacerated; their torn coats are a barrier, and a clot is soon formed, and thus an effectual resistance to the flow of blood.

In this case it is seen that there was no hemorrhage; and although the patient was kept in a dreadful situation for half an hour, and had so recently undergone a severe operation, he, in a few hours, was not in a more depressed condition than if he had

simply undergone amputation of the arm, and every one about him looked forward to his quick recovery. So much, in fact, had the patient improved, that in a few days the only anxiety Mr. Fergusson expressed was the possible and even probable occurrence of secondary hemorrhage; and this opinion was well founded, as, from the insufficiency of integument, the great wound was partially uncovered, and the axillary artery could be seen beating strongly in its centre; moreover, some superficial sloughing of the stump had taken place.

On the tenth day hemorrhage unfortunately did take place, but it was restrained. A second time it happened; and a third occurrence of it destroyed the patient.

A word or two may be said about the treatment for this second hemorrhage. At the first attack, Mr. Fergusson placed a ligature on the extremity of the vessel, under the hope that the sloughing would not extend further. In the second, the vessel was dissected up, and I placed a ligature half an inch higher up. On the third occurrence, the subclavian was cut down upon and tied; but it was then evidently too late for this proceeding to be of any use.

The question is this: Ought not this last operation to have been performed on the second occurrence? I fully believe that such would have been the correct practice; but the emergency was so great, and life was so nearly gone, that I was glad to be able to put a stop to further bleeding at once in the quickest manner. It must be confessed, however, that it is a poor chance, as in this case, to place a ligature on the extremity of a vessel, when secondary hemorrhage has occurred from sloughing, and when the proceeding has once been tried, and found useless. In the *first* instance, the character of the surgeon who adopted the proceeding is a sufficient guarantee for its propriety.

Lancet, June 17, 1848, *p.* 660.

74.—*Case of Resection of the Scapula.*—By W. Fergusson, Esq.—[The patient, a man aged 33, had previously had the arm amputated at the shoulder joint, and part of the glenoid cavity removed, for disease of the shoulder. The whole of the disease appears not to have been removed, for at the time of his admission into King's College Hospital, the whole shoulder was enlarged and had several fistulous openings.]

Having determined on the propriety of removing the scapula entire, Mr. F. proceeded to operate, on the 6th of February, 1847. The patient was put under the influence of ether, and the clavicle was first exposed, and divided about two inches from its acromial extremity with a saw; another incision extended along the spine of the scapula, and a third in the course of the old cicatrix. Some further dissection, and a division of the attaching muscles, enabled the operator to complete the excision, the subclavian artery being the while compressed over the first rib. The axillary and other arteries were tied, and the wound was closed with stitches. The

patient's recovery was satisfactory, and unattended by anything deserving particular notice. On May 5th he was sent into the country, and a recent account reports him to be well and fat, though still occasionally troubled with small abscesses on the breast. After maceration, the bone exhibited a hypertrophied condition; the remaining portion of the glenoid cavity was carious, and its margin was surrounded by a mass of new ossific matter. The author concluded with some observations on the interest attaching to the case, from the rarity and formidable character of the operation required for the relief of the disease, and its successful issue.

Lancet, June 24, 1848, *p.* 690.

75.—*Case of Excison of the Ankle Joint.*—By T. Wakley, Esq., reported by W. Cooke, Esq.—[The patient, a man twenty-three years old, had the astragalus and os calcis affected with caries; and as he objected to amputation either below the knee, or at the ankle, Mr. Wakley resolved to dissect out the diseased bones. The operation was performed with the patient under the influence of chloroform. Mr. Cooke tells us,]

The diseased foot (the left) having been drawn forwards so as to be free of the operating table, Mr. Wakley, standing directly in front, and holding the scalpel in his left hand, made an incision from the prominence of the *internal* malleolus, backwards and downwards, to the middle of the heel. A similar incision with the right hand was then made from the *external* malleolus, downwards and backwards to join the foregoing. A third incision was next carried along the edge of the sole, from the middle of the first to a point opposite the astragalo-scaphoid articulation: and a fourth on the opposite side of the sole, from the vertical incision to the situation of the calcaneo-cuboid joint. These latter incisions enabled the operator to make a flap of about two inches in length from the under part of the sole. In the next place a circular flap of integument was formed between the two malleoli, posteriorly, the lower border of the flap reaching to opposite the insertion of the tendo-Achillis. This flap being turned upwards, the tendon was cut through, and the os calcis having been disarticulated from the astragalus and cuboid bones, was removed, together with the integument of the heel included between the two incisions. The lateral ligaments connecting the astragalus with the tibia and fibula were now divided, and the knife was carried into the joint on each side, extreme care being observed to avoid wounding the anterior tibial artery, which was in view. The astragalus was then detached from the soft parts in front of the joint, and from its articulation with the scaphoid bone, and the malleoli of the tibia and fibula were removed with the bone-nippers. The only artery requiring ligature was the posterior tibial. During the few minutes the operation occupied, the patient did not manifest the slightest symptom of pain or uneasiness.

[The case did well: and in a few months the man was able to walk very well with the aid of a stick and a high heeled boot, and returned to his employment. Mr. Cooke makes the following]

Remarks.—The excision of joints is one of those magnificent improvements in the practice of surgery by which the bold men of the last century have made themselves and their profession illustrious, and by which they have contributed so much to the public weal, thereby preserving the means of prehension and progression to those, who had they lived in former times, would have been either unnecessarily deprived of those members by which a man labours for his bread, or left to linger hopelessly until death should relieve them from their sufferings. It is scarcely ninety years since a country surgeon removed the patella, together with the extremities of the femur and tibia, and since that time it is well known how the shoulder, elbow, hip, and ankle joints have been well and successfully excised, to the saving of many a useful limb. Various operations have been performed upon the ankle joint, the most important being that of the two Moreaus—viz., the excision of the lower extremity of the tibia and fibula; portions of the other bones entering into the formation of the foot and ankle have been removed by the gouge and the saw; but there is no case on record of the entire removal of the two important bones of the foot—the astragalus and os calcis; and therefore I think it desirable to report this case, in which that operation was most ably and successfully performed by Mr. Thomas Wakley, and which I have had an opportunity of watching throughout. The failing health of the man, and the positively ascertained disease of the two bones, rendering an operation of some kind imperative, it became a subject for consultation to determine what the nature of that operation should be. The question of removing the leg below the knee the patient had himself already disposed of by positive refusal at another hospital. The removal of the whole foot, upon Mr. Syme's plan, was discussed; but Mr. Wakley, impressed by the man's desire to retain as much as possible of his limb, decided upon the hitherto unattempted removal of the os calcis and astragalus—thus gratifying the wishes of the patient by preserving his foot, and hopefully leaving time to show how far usefulness and power might be restored to the then useless member. The great objection hitherto to the excision of the astragalus and os calcis has been, that the posterior tibial artery being of necessity sacrificed, it was considered impossible, from the immediate contiguity of the anterior tibial to the bone, to avoid wounding that artery, thereby cutting off the great supply of blood to the foot; for the anastomoses of the smaller arteries could not be sufficient to prevent the death of the anterior remanent portion of the foot. This difficulty, however, was most successfully overcome; the artery, which was seen pulsating against the flat blade of the knife, was dissected carefully away from the bone, and remained intact. The result of this operation will, it is hoped, justify its universal adoption in similar cases. Small abscesses have formed at intervals, leaving little sinuous openings,

such as are recorded by all who have written upon the excision of scrofulous joints, owing, doubtless, to the long-continued disease of the soft parts. These have, however, now all healed: there is perfect flexion and extension of the foot; and with the aid of a high-heeled shoe he is enabled to walk about, and has returned to his employment in perfect health.

Lancet, July 1, 1848, *p.* 5.

76.—*Case of Compound Fracture and Dislocation of the Astragalus.* By —— Faircloth, Esq.—[The patient, a lad 14 years old, was riding a vicious horse, which fell over on its side, and crushed his left ankle:]

The astragalus was dislocated from its connexion with the os calcis, and this articulating surface turned outwards through the lips of the wound. The bone was not separated from its attachments to the tibia and fibula, nor from the scaphoid anteriorly, but to allow the bone to turn half round, the neck had given way transversely. Both the anterior portion of bone, which remained *in situ*, attached to the scaphoid, and the other larger portion were chipped or broken more or less.

Treatment.—After a very careful examination of the parts, the foot, the vessels, and the boy's state generally, it was resolved to try and save the limb. The dislocated portion of the astragalus, (amounting to four-fifths of the whole of that bone.) was carefully detached from the tibia and fibula, and these bones let down upon the calcis. The edges of the wound were brought together with three or four stitches and plaster, a compress of lint was placed over them, covered with oiled silk, confined with a turn or two of the bandage, and the whole secured in Macintyre's splint. During the first week he suffered from irritative fever, but much less so than might have been anticipated. He took salines and aperients, &c., as required. There was very little oozing of blood after the first few hours, but synovia was discharged in considerable quantities. The treatment was persevered in, the wound being dressed still with dry lint under oiled silk, as often as necessary until about fourteen days, and the splint itself was of course reapplied. This was done continually until about seven weeks from the date of the accident, when it was discarded, and an inside wooden splint with a foot-piece substituted for it, and a bread poultice employed. At the expiration of another week this support was removed, the limb bandaged, (a pad of lint only, being used for dressing) and a stirrup of paste-board passed under the foot, and continued up either side of the leg. He now got up and walked about, aided with crutches, the foot being supported in a sling. Seven days after this time he began to try and accustom himself to bear slightly on the foot. He soon left off one crutch and used a stick. The wound was touched with sulphate of copper from time to time, and only covered with lint.

November 6th. He now walks with a crutch and stick, when going any distance, and walks well. The ankle is almost motionless as regards flexion and extension.

April 10, 1848.—Walks well with a stick, frequently without one; the limb is nearly an inch shorter than the opposite one. Flexion and extension movements of joint increase.

Mr. Image related a similar case, and a discussion arose about the propriety of removing the bone in these cases, which Mr. Image remarked was about an equally divided point in British surgery. He thought his case, which was fatal from sloughing and consequent irritation, fever, and prostration, would have had a better chance of recovery had the bone been removed.

Provincial Medical and Surgical Journal, July 12, 1848, *p.* 385.

77.—*On Amputation of the Fingers and Toes.*—By G. Williamson, Esq., Staff Surgeon, Fort Pitt.—During the last seven years I have been in the habit of operating in the manner about to be described. None of the methods are strictly new, but are modifications of those generally performed. They appear, however, to possess several advantages.

If a portion of a finger is to be removed at the articulation of the phalanges, a common narrow, sharp-pointed bistoury is pushed from one side of the finger to the other, in front of the joint, and the flap made; the knife is now laid perpendicularly upon the lateral ligament, then brought across the joint, and the other lateral ligament cut; by this proceeding the joint is at once opened, and nothing remains but to divide the skin posteriorly. In amputating between the first and second phalanges, transfixion is made opposite to the large fold in the integuments in front, and the joint is at once come upon, as the two exactly correspond. The articulation between the second and third phalanges is one line in front of the fold. By cutting into the joint posteriorly there is always considerable difficulty in getting the knife between the bones, so as to make the flap in the palmar aspect; in consequence of the extensor tendon having been divided, the flexor contracts and drags the phalanx which is to be removed in front of the one which remains. The flap in the palmar aspect being made first, that difficulty is avoided, and the operation is performed with more rapidity and ease.

In removing the whole of the finger the method adopted is this. The point of the knife is laid on the skin half an inch above the articulation, carried down straight over it, and then brought by the side of the finger into the large fold in front, and continued upwards on the opposite side to join the incision on the dorsum. This incision is performed by one continuous sweep from left to right, without removing the knife. The finger is now pressed well out so as to put the ligaments on the stretch, the joint entered, and the operation concluded.

Having determined previously to remove the head of the metacarpal bone along with the finger, the same mode of proceeding is adopted, without, however, opening the joint. The incision is commenced on the dorsum, about an inch and a half above the

joint, carried straight down, then brought round into the large fold in the palm, and continued upwards to where it began; the blade of the knife is now placed parallel with the metacarpal bone, and carried round its head from right to left, and brought back in the reverse manner, and the bone divided by the forceps. By this method there is no cicatrix in the palm, the flaps are smooth and regular; the operation is also quicker in its performance, and leaves a much better and neater covering than by the mode usually followed.

When amputating the thumb and metacarpal bone, the operator stands either on the inner or outer side of the arm, but I prefer the inner side as most convenient. The point of a long, narrow, straight bistoury is entered opposite to the articulation of the metacarpal bone and the trapezium, passed under the adductors, and its point made to appear in the folds of integuments betwixt the thumb and fore-finger, and by cutting outwards a flap is formed; the knife is now laid upon the angle of the incision, between the thumb and finger, and continued over the dorsum of the bone to the part where it was entered to transfix. The thumb is then firmly grasped by the operator, and the soft parts divided down to the articulation, which is now disarticulated with great facility. The result of this operation is exactly the same as that recommended by Mr. Liston. One of the chief points to be attended to before commencing an operation, is to have a good position for its performance: in Mr. Liston's method the surgeon stands in front, and is, consequently, very awkwardly placed for disarticulating the metacarpal bone; whereas, by standing behind, the operator has the power of putting the muscles and ligaments on the stretch, and dislocating the bone with great facility.

For the removal of a whole toe the same oval method, as it may be called, is adopted. It is here of still greater advantage, as there is no cicatrix left in the sole of the foot to annoy the patient when walking. The metatarso-phalangeal articulations of the small toes are deeply seated in the ball of the foot, and the knife must be carried by the method usually practised to the extent of two inches into the sole to reach the joint, and, on disarticulating the bone, the integuments are notched and cut in a very awkward manner; in the method recommended, these objections are removed.

In amputating the finger, the head of the metacarpal bone should always be removed; but in the toes it ought, if possible, to be preserved, especially that of the great toe, for the purpose of giving greater support in walking.

The toes, with the whole of the metatarsal bones, can be removed in the same manner; the great and little toes are those that most frequently require to be amputated; this can be effected by making a straight incision along the dorsum, brought down into the fold in the sole, and terminating in an acute angle near its commencement. The bone is then cleared and disarticulated.

Medical Times, May 27, 1848, *p.* 56.

ORGANS OF CIRCULATION.

78.—ON THE SOUNDS OF ANEURISM OF THE AORTA.

By Dr. O'B. Bellingham.

[The following conclusions respecting the sounds of the heart and of aneurism of the aorta, have been arrived at by Dr. Bellingham.]

1st. That a double, not a single sound, characterizes aneurism of the arch of the aorta, which closely resembles the double sound of the heart, and may be termed its *normal* sound.

2nd. That the normal double sound of aneurism of the arch of the aorta has its cause in the friction between the blood and the lining membrane of the orifice and parietes of the sac, because there is no other agency to which it can be referred.

3rd. That the normal second sound of aneurism of the arch of the aorta is caused by the regurgitation of the blood into the sac from the aorta and large vessels which arise from it.

4th. That the first, or the second, or both aneurismal sounds, may be replaced by a murmur, which may have either a blowing, sawing, or filing character; and that such murmurs may be regarded as the *abnormal* sounds of aneurism of the arch of the aorta.

5th. That the first aneurism sound is much more frequently superseded by a murmur than the second, because the force with which the blood is transmitted to the sac by the left ventricle is much greater than that with which it regurgitates into the sac at the period of the ventricular diastole.

6th. That the abnormal sound of aneurism of the arch of the aorta, equally as its normal sounds, are caused by friction between the blood and the orifice or parietes of the sac; and that they are nothing more than exaggerated normal sounds — exaggerated, because the degree of friction is then increased.

7th. That in aneurism of the arch of the aorta pointing externally, the sound is not only always double, but a double impulse is frequently also perceptible to the hand.

8th. That the second impulse of aneurism of the arch of the aorta has its cause in the same agency which gives rise to the second sound; consequently neither a double sound nor a double impulse are perceived in aneurism of the abdominal aorta, or of any of its branches.

9th. That the phenomenon known under the name of Frémissement Cataire, or purring tremor, whether it occurs in an aneurism or a large artery, is nothing more than the pulse of aortic regurgitation on a large scale; consequently that it is a sign of regurgitation into the ventricles of the heart, into an aneurismal sac, or into a large or a dilated artery.

10th. That the remarkable resemblance between the normal and abnormal sounds of aneurism of the arch of the aorta, and the normal and abnormal sounds of the heart, renders it probable that the mechanism of their production is the same.

11th. That the abnormal sounds of the heart, having their seat at the orifices of the ventricles, and being the result of increased friction between the blood and the parts through which it passes, are (like those of aneurism of the arch of the aorta) to be regarded as nothing more than exaggerated normal sounds.

12th. That the impulse of the healthy heart, like that of aneurism of the arch of the aorta pointing externally, is *double*, not *single*; and that in certain abnormal conditions of the heart, this second impulse becomes very distinct, when it has been termed "the back stroke of the heart," or "the diastolic impulse."

13th. That the second impulse of the heart (like that of aneurism of the arch of the aorta) is felt exactly at the period of the second sound; and both sound and impulse appear to be produced by the same agency.

14th. That as sounds almost precisely similar to those of the heart are developed in an aneurismal sac, which has neither muscular walls nor a valvular apparatus at its orifice, the latter do not appear to be as essential to the production of the normal sounds of the heart as most writers suppose.

15th. That the ordinary theory of the heart's sounds, which refers the normal sounds to one cause, and its abnormal sounds to a totally different cause, fails to explain several phenomena connected with the heart's action and sounds.

16th. That the theory of the mechanism of production of the heart's sounds, laid down in the preceding pages, satisfactorily explains every phenomenon connected with the normal and abnormal sounds of this organ.

Dublin Medical Press, June 28, 1848, *p.* 408.

79.—*Note on the Suppression of Hemorrhage.*—By Dr. Knox.—Mr. Abernethy taught me, at least, two great principles, which I have never forgotten. First, when you attach much importance to the doing of anything, you had better do it yourself; this inestimable maxim will apply, I believe, to most affairs in life. Secondly, when there is bleeding from a wound, fresh or otherwise, and you have reason to believe that it comes from a vessel of dangerous magnitude, then lose no time in securing it in the usual way, by efficient pressure against a bone, or by ligature; but if you cannot make efficient pressure, and yet believe that it is but a muscular or other small thread which has been wounded, then refrain from all pressure and leave it to simple exposure to the fresh air, aided, as the case may be, by a wet rag, rest, and a favourable position.

Medical Times, April 15th, 1848, *p.* 477.

80.—*An easy Means of rendering the Ulnar Artery more accessible.*—By M. Malgaigne.—The means suggested by M. Malgaigne, the

efficacy of which the reader may at once test upon his own person, will be found of great utility, when circumstances prevent our feeling the pulse at the radial artery, or when it is desired to take up the ulnar. He thus describes it:

"I have several times had occasion to place a ligature around the ulnar artery for lesions of this vessel; and when the cellular tissue is gorged with effused blood, and it is necessary to seek it at a considerable depth, I do not hesitate to term it a very difficult operation. Perhaps the means I am about to state will assist in removing the principal difficulty, which especially depends upon the depth of the artery. If the fingers and hand are turned forcibly backwards upon the dorsal aspect of the forearm, the relations of the ulnar artery become surprisingly changed. The deep-seated muscles upon which it lies are forcibly raised, and cause a sensible projection under the skin. The tendon of the flexor carpi ulnaris, on the contrary, retreats inwards and backwards; so that the artery, which, in the natural position of parts, is partly concealed by it, is now forced to a much more anterior plane, and lies four or five millimetres on the inner edge of the tendon. In many subjects it becomes more superficial than the radial, and it may be seen raising the skin at each pulsation.

In traumatic lesions of the vessel, the same position brings the wounded extremity of the vessel towards the surface, and enables us to seize it; and in any case, when we wish to pass a ligature around the vessel, there will be no longer occasion to denude and draw away the tendon of the flexor.—*Revue Médico-Chirurgicale.*

British and Foreign Medico-Chirurgical Review, July, 1848, *p.* 265.

81.—*On Division of the Falciform Border of the Fascia Lata, for Varix of the Saphena Vein.*—By Dr. W. B. Herapath, Bristol.—Without entering into a discussion of the various causes productive of a varicose state of the veins of the inferior extremities, yet I hope to be able to show that there is one cause which has hitherto escaped the attention of surgical authors, and that it also admits of an easy remedy.

Varix has been too generally thought to depend upon an imperfect condition of the valves of the venous trunks. That this alone is the case in some instances, I will not dispute, but if pressure exist upon the vein at any point intermediate between its radicles and the right side of the heart, distension of the distal portion will be produced to such a degree, that the valves can no longer close the dilated vein; but remove the cause of the enlargement, and the valves again become capable of resuming their functions.

The superficial cutaneous veins are most commonly affected. These are the internal and external saphena, both of which have to pass through apertures in the deep fascia, in order to reach the larger trunks, into which they deliver the circulating current. Now should these apertures at any time be too small to allow the passage of the quantity of blood carried by the veins, distension must ensue, and varix result.

The case detailed was purely a varicose state of the internal saphena, but it is possible that the external saphena might be also varicose in the same subject, and require a distinct operation for its cure; but should the popliteal vein be also varicose, the seat of the obstruction would of course be on or above the external iliac vein, and that remedy must be used which may be applicable to the circumstances of the case.

The operations hitherto adopted for the removal of a varicose state of the saphena relieve by *obliteration* of the vein; consequently advantage is taken of anastomotic communications, and the circulating current is simply directed into other venous trunks. But the plan which I have proposed and tested by experiment is more philosophical, as it restores the circulation in the natural direction, by removing the cause of the obstruction.

It is an operation devoid of danger when carefully performed, and therefore when applicable, it presents additional advantages over those hitherto proposed, as they nearly always give rise to more or less inflammation of the veins, which has not unfrequently been followed by fatal consequences.

[The case was one of a man 24 years of age, in whom a varicose state of the veins of the left leg and thigh came on after wearing a truss for a few years, for inguinal hernia. The distension was very great, but was confined to the internal saphena and its branches; and Dr. Herapath was led to conclude, from several circumstances, that the obstruction was not higher than the saphenous opening, and accordingly proposed an operation for the relief of the disease. Dr. Herapath says,]

On April 27th, I proceeded to perform the operation of dividing the falciform border of the fascia lata, assisted by my friend Mr. Edward Martin, who fully concurred with me in adopting the plan, and also by my pupil. The patient was placed in the same position as in the operation for femoral hernia; and as he had requested that ether should be administered to him, Mr. Martin kindly undertook the management of this part of the proceedings. When he had become thoroughly under its influence, I pinched up a fold of skin between my fingers sufficiently large, and then transfixed and divided it with a pointed bistoury; an incision three inches in length was thus obtained obliquely upwards and inwards, immediately over the swollen termination of the saphena vein. The superficial fascia was remarkably thin at this spot, and having carefully dissected it away from its attachment to the falciform border, and then with the pointed bistoury carefully passed *directly upwards* immediately beneath the iliac layer of fascia, (the vein being depressed and protected by my left fore-finger,) I divided the crescentic border of the saphenous opening to the extent of half an inch, which of course considerably enlarged the aperture, and at once removed the stricture, and the varix immediately disappeared. At this stage of the operation, the patient most unexpectedly gave a kick, the point of the bistoury penetrated one of the abdominal

branches of the saphena, probably the superficial epigastric, and hemorrhage to a greater extent occurred than the operation necessarily involved. Pressure with the thumb immediately controlled, and a sponge full of cold water soon stopped it. About two or three ounces of blood were lost.

The wound was closed by two points of suture, and drawn together by adhesive plaster, and the whole covered by a pad of wet lint, held on by a few turns of a bandage. The patient was carefully drawn into bed, and quietness was peremptorily enjoined.

The wound healed kindly almost by the first intention, and without a bad symptom.

May 11th. He was allowed to get up; *no enlargement of the veins occurred*, although no support has been hitherto applied.

14th. He has been out walking for a short time; no sign of the return of the varix appears. There is a hardened clot, the size of half a pea, in the situation of the swollen portion of vein, at the internal condyle; the other portions of the venous trunk are but little larger than in their natural state, so that the operation may be distinctly proved to have been perfectly successful.

Had I not depended too much upon the peculiar quiescent power which ether generally produces upon the muscular system, the little accident which took place would not have occurred, and but little blood would have been lost. In future it will be advisable to use a probe-pointed bistoury at this stage of the operation.

Provincial Medical and Surgical Journal, July 26, 1848, *p.* 399.

82.—*On Opening the Temporal Artery.*—By Bransby Cooper, Esq.—The best mode of performing the operation is to make an incision into the skin, so as carefully to expose the artery, which must then be raised from the aponeurosis of the temporal muscle by a probe passed beneath the vessel, which is then punctured by a lancet, as in venesection. When the necessary quantity of blood has been withdrawn, the artery is to be completely divided by a probe-pointed bistoury, and the truncated extremity compressed by a dossil of lint, so as to prevent the recurrence of the bleeding. If the artery be not divided, but a compress merely applied over the puncture, an aneurismal tumor is almost certain to form, rendering a surgical operation necessary for its cure. I have myself known very many instances in which such a result has occurred. The treatment consists in applying pressure on the temporal artery, both on the proximal and distal side of the aneurismal sac, which is to be laid open, so that the whole of the coagulum can be turned out, after which each end of the artery is to be secured by ligature.

Medical Gazette, June 9, 1848, *p.* 968.

83.—*On the Use of Oil of Turpentine in Hemorrhagic Diseases.*—By Dr. L. Percy, Lausanne.—[This remedy, not a new one, for it has been noticed by several writers,—has been used by Dr. Percy with the best results. We are told that,]

The cases in which its use is indicated are those of passive hemorrhage. It must not be employed in cases where there is an active determination of blood, and where the pulse is full. When the discharge of blood is the consequence of organic disease, as of disease of the uterus, or of tubercular disease of the lungs, the action of the remedy is not so efficacious; but the author has seen a case of scirrhus of the womb, in which the hemorrhage was for some time stopped by this remedy. The author has found the action of turpentine oil very rapid, an effect being manifest in a few hours, often after one small dose. In order better to ascertain its power, he used it alone, without having recourse to local astringents or cold applications, where he could do so without fear of endangering the life of the patient. He has used it most frequently in cases of menorrhagia and epistaxis; but he mentions, that it appears to him to be particularly applicable in the cases of hemorrhage attending typhus. He noticed the fact that turpentine exerts different actions on the body according as it is taken in large or small doses, being more readily absorbed in the latter case; and he remarks, that as its beneficial action in cases of hemorrhage must depend on its being absorbed, the inference would be drawn, that the doses in which it is given in such cases ought to be small. His experience confirms this conclusion. He has always found a dose of from eight to thirty drops sufficient. The best vehicle for it is almond emulsion, with a little gum arabic. When there is pain in the abdomen, a few drops of laudanum may be added.

[This remedy will now be very inferior, in many cases, to gallic acid and matico.]

Medical Gazette, July 21, 1848, *p.* 122.

ALIMENTARY CANAL.

84.—ON SOME POINTS IN THE TREATMENT OF HARELIP.

By H. H. Walton, Esq., Surgeon to the Central London Ophthalmic Hospital, &c.

[Mr. Walton's observations refer to that form of harelip which is accompanied by cleft maxilla, one of the edges of the divided alveolus projecting. Respecting the treatment of these cases, he says:]—

The usual practice is to excise the bit; and from what I have read and seen, I know that the bone-forceps have at times been freely applied. But obviously a great ill is incurred by the loss of bone from a part where so many and such important services are required of it. It is then to save and make available this piece of

bone, which would otherwise be useless, and at the same time an obstacle, that I write.

During the last winter Mr. Fergusson was kind enough to allow me the opportunity of seeing him operate for a double harelip, involving the maxilla on each side; and Gensoul's method of bending back the central portion of bone was resorted to. Shortly after I availed myself of the information I had gained; for three cases of harelip were brought to me within a few weeks of each other, each with labial and maxillary clefts, two with entire division of hard and soft palate, one with the alveolus only divided. In all the protruding bone was very prominent, and the deformities bore a great resemblance to each other. These did not admit of Gensoul's method, but with a slight alteration I was enabled to apply his principle.

I shall not uselessly go into the steps of operating on the lips; enough to say that it is effected with a small scalpel and my fingers, and that I detach the soft parts from the subjacent bones more extensively than is generally done. I now cut through the protruding alveolus in its entire thickness, applying the bone-forceps at the spot about corresponding to the space between the first and second incisive (and it has happened in all the cases that the deviation from the natural contour commenced just about there), and bend back to the desired level the partially detached portion, which, I may remark, contains the rudiments of the two front teeth.

Dividing the alveolus at the part described may not be without benefit, since probably it interferes as little as it is possible with the future teeth. The soft parts can now be brought together with as much facility as when only fissure of the lip exists. Not much force is required in thus dealing with the bone after the forceps have been applied. There is no fracture, but a yielding, which I imagine may be ascribed to the yet imperfectly ossified incisive and palatine portions of the maxilla. I retain the lip *in situ* with pins and the twisted suture, according to the ordinary method. Of the after treatment I have no remarks to offer. There remained in one of the cases an irregularity at the free margin of the alveolus, the depressed portion descending a little below the natural line; but I did not deem any interference with it necessary.

Authorities differ about the age when the operation should be performed; the majority advise a late operation, some preferring the age of two years, some even later than that. If a portion of bone is to be removed, I do not think it matters much about the delay; but I hold it to be necessary to ensure success with the plan I recommend, that the operation should be resorted to at some period before dentition; and I should say that after the child is a month old the sooner it is done the better. One reason assigned for delay is, that very young children cannot bear the shock and loss of blood consequent on the operation. With modesty I would say that I believe the fear to be greatly exaggerated. We know that infants undergo more severe operations with success. On this

subject Mr. Fergusson says, "From all my reflections and experience on the question, I am more than ever disposed to recommend a very early operation. Within the last twelve months I have operated on five infants, all of them under three months, with the most satisfactory results; and these cases, with others which I have previously had, are sufficient to induce me to pursue a similar practice in all instances of the kind which may come under my notice, unless there be some apparent indication not to interfere." And again, "I once asked the late Dr. Abercrombie, of Edinburgh, the result of his experience on this point," *i. e.*, convulsions ensuing in children while undergoing operations, "and he could not bring a single instance to his recollection where convulsions could be fairly attributed to an operation." Many instances have been recorded of infants of only a few days old having been operated on for harelip with success: other objections I shall not answer. The respective ages of my little patients were four, six, and eight weeks. All were unusually small and thin, one peculiarly so. I have operated on children under six months, and with good results. In the case with the alveolus only divided, and the palate not implicated, there is not the slightest aperture remaining in the bone, for the piece pressed back accurately filled the chasm. The others are less perfect, but the little gap that exists is very trifling.

It remains for me to say that the result of my cases has been fully satisfactory. When similar affections come under my care, I shall use the same means, and not, as I have in other instances, remove any portion of bone.

Medical Times, June 17, 1848, *p.* 107.

85.—*Suggestions respecting Operations on the Lips.*—By T. Paget, Esq., Leicester.—In excisions, the hand of an assistant at each angle of the mouth, to compress the arteries, is often considerably in the way, and may be better employed. I have therefore, on the last fifteen or twenty occasions, applied, at each extremity of the lip to be operated upon, a strong and large pair of Dieffenbach's forceps, which have effectually controlled the hemorrhage, and left the hands of the assistant at liberty for other purposes. I have even operated without other assistance than that of the forceps. Their concave margin is towards the ear, and after applying, it is well to give them a slight pinch, to increase the compressing force. Messrs. Weiss and Co. have made them for me, and know the size and strength required.

Another trifling suggestion is the adoption of thin steel pins, instead of the usual silver ones, cutting off the points with pliers, as in operations upon the saphena.

The only other innovation I have to recommend upon the operation, is one I have practised for many years, an imitation of the veterinary mode of producing compression and co-aptation after phlebotomy,—namely, the use of strips of lint, twisted about the pins, instead of thin ligatures. The lint should be of the firm kind, called "endless," and the strip about half an inch wide. Its value

lies, of course, in the wider and more serviceable compression it gives; indeed, by two pins, with lint applied to each in a crossed form once, then two or three times tightly coiled round at the base, and tied, the whole incision is occupied, extended compression given, and the dressing completed. The lints being soaked in blood during their application, will even adhere, after careful removal of the pins, until cicatrization is perfect.

Provincial Medical and Surgical Journal, May 31, 1848, *p.* 289.

86.—*On the Proper Period of Life for Operating on Hare-lip.*—By Bransby Cooper, Esq., F.R.S., &c.—"For my own part," says Mr. B. Cooper, "I agree entirely with Sir Astley Cooper in regarding it as unsafe to operate on infants before weaning: firstly, because, from their excessive irritability, they are totally unable to sustain any loss of blood; and, secondly, because after the operation they are rendered incapable of sucking; and, indeed, Sir Astley has pointed out in his lectures the frequency of the failures he met with in his own practice in operating upon infants shortly after birth. I consider the best time, under ordinary circumstances, to be soon after the child is weaned, as it is then capable of receiving nourishment independently of its mother, and has overcome the distress incidental to the separation from her.

At a more advanced age, as the development of the upper jaw increases in proportion to the growth of the teeth, the deformity is very much aggravated, particularly in case of complex hare-lip. In addition to this, children of five or six years old can offer resistance during the operation, and are also less patient under the restrictions necessary during the progress of reparation.

The twisted suture is, I think, preferable to the interrupted; but, from what I have seen of the practice of my colleague Mr. Cock, I am led to consider the uninterrupted suture better than either."

Medical Gazette, June 23, 1848, *p.* 1056.

87.—ON THE TREATMENT OF NASAL POLYPI.

By Wm. Colles, Esq., Surgeon to Steevens' Hospital, Dublin.

[Speaking of gelatinous polypi, Mr. Colles says:]

These tumours are now in general removed by means of the forceps. We seize them as near the root as possible, and by drawing them out, and at the same time twisting the forceps, tear through their attachment. The use of the forceps is, however, liable to several objections: 1. Though we see the polypus plainly, yet when we introduce the forceps, the blades of the instrument and the surgeon's hand obstruct the view; 2. The opening the blades of the forceps is attended with pain, from the pressure on the sides of the nose, and often causes laceration of the mucous membrane; and, 3. If the nose be at all distended, so that the internal part is much

larger than the orifice, we cannot open the forceps sufficiently to get one blade on each side of the polypus; we are therefore compelled to seize the polypus at its larger, or bulbous end, and are able to remove only portions of the tumour at each time; hence the operation is tedious and painful, and often attended with considerable hemorrhage.

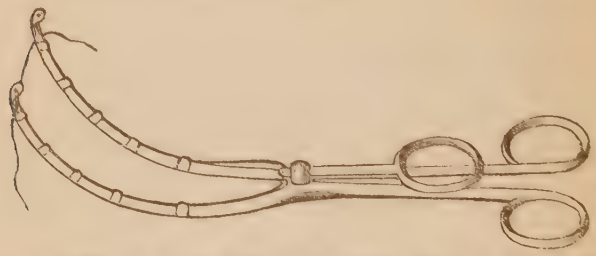
For the last two or three years I have been in the habit of employing, in this operation, an instrument which is free from many of the objections to the forceps, and which I first saw with Mr. Cusack, but was, I believe, originally described by Dr. Robertson, of Kelso, in the Edinburgh Medical and Surgical Journal, for 1803. It resembles, on a larger scale, the snare for the removal of polypi of the ear, of which a drawing and description was given in a previous number of this Journal by Mr. Wilde. We open the wire at the end of the instrument, introduce the noose beneath the polypus, and endeavour to get it as near the attachment as possible; when in this position, by drawing down the handle of the instrument the wire is tightened round the root, and a very slight force, with some rotatory motion, will suffice to remove the entire polypus.

[These polypi, however, are very liable to return; and the liability cannot be lessened by any means that Mr. Colles is acquainted with.—When polypi project backwards from the posterior nares, and occupy the upper part of the pharynx, their removal is often a very difficult matter. They may exist for a considerable time undetected; and therefore it is important, whenever symptoms of obstruction of the nose are met with, to pass the finger from the mouth behind the soft palate, so as to ascertain whether a polypus exists. When polypi in this situation are small, numerous, and soft, we may attempt their removal by the forceps: and Mr. Colles recommends as the best form of instrument, a curved forceps, with the blades opening in front and behind. But when the tumour is single, firm, and large, the ligature is to be preferred. Mr. John Bell employed for this purpose, a silver wire, which he passed through the nostril, and then with the points of the fingers thrust deep into the throat, carried it over the tumour. But this is a very difficult operation, and Mr. Colles describes an instrument which he states, will much facilitate the application of the ligature. Mr. C. says:]

The great difficulty of passing the ligature round this polypus arises from these facts:—the tumour grows from some part above the floor of the nose, and hangs down behind the soft palate; a ligature, therefore, passed along the nostril, and brought out at the mouth, will lie on these parts, and will be in front of the tumour. To pass it round the polypus, therefore, the noose must be passed from the mouth below, and then behind the polypus, and so expanded as to pass also on each side; but we find that there is a spasmodic action of the parts forming the opening between the mouth and pharynx, which is induced by the presence of the ligature or of the surgeon's finger; so that, no matter of what consis-

tence the ligature is, or what shape we give the noose when in the mouth, when passing this part it will be closed, and thus remain in front of the polypus, and the difficulty will be increased in proportion to the size of the tumour.

In order to obviate, in some respects, these difficulties, and to facilitate the operation, I have (with the assistance of Mr. Read, the cutler, of Parliament-street), and after various modifications, constructed the instrument here figured.



It resembles a curved forceps, so joined, that, on closing the handles, the blades separate; across the end of each blade a semicircular notch is formed, sufficiently large to allow the ligature to move easily; this notch may be closed by means of a wire running in front of each blade, which can be passed across the notch by means of a ring moving at the hinge of the instrument.

In performing the operation, the selection of a ligature is a matter of some importance: a metallic one is liable to snap across on being tightened or twisted, and a cat-gut one, on being moistened, becomes too pliable and apt to twist, therefore, as neither will answer singly, I generally make use of one of thin silver wire and cat gut twisted together; this gives a firm, consistent, and strong ligature. This ligature is readily passed through the nose and brought into the mouth without the intervention of any other instrument. We double the ligature, give it a slight curve, and pass it along the floor of the nose; the patient will soon be aware of its presence in the throat, where it will produce cough, and some convulsive efforts; on opening the mouth we readily see it, and by means of the finger, forceps, or blunt hook, we can bring it forward into the mouth, when we apply the supplementary ligature to draw it back if necessary. We then open the apertures in the ends of the forceps, the blades being closed, put the ligature into the open notch in the instrument, where we secure it by pushing up the wires. If the tumour be large and visible, it will assist the operation to pass a hook or forceps through the noose of the ligature, and seize the tumour, and draw it forwards and downwards; we thus render the tumour fixed, make room for the free motions of the instrument behind it, and allow the ligature to run smoothly over its sides; then, with the hook in the left hand,

the surgeon passes with the right the closed forceps, armed with the ligature beneath and behind the polypus, and, depressing the handle, carries the ends of the instrument so as to be on a level with the insertions of the tumour; he then closes the handles, by which he opens the blades, and spreads out the noose of the ligature, when an assistant, gently pulling the ends hanging from the noose, causes it to glide along the ends of the tumour. By drawing back the wires, by means of the ring in the instrument, the ligature, thus set free, is left encircling the insertion of the tumour, and the instrument can be removed, It now remains but to fix the ligature, and tighten it so as to cause the death of the tumour; this is generally effected by means of the double canula, or what I prefer, that of Græfe, where the ligature is fastened to a button, moveable along the canula by means of a screw, for with it we can tighten the ligature without twisting it or the canula, which latter proceeding is always attended with considerable pain to the patient.

Having thus effectually applied the ligature, and insured the subsequent separation of the tumour, there remains one important proceeding before concluding the operation; that is, to pass a ligature through some portion of the tumour, and leave it hanging from the mouth; for it has happened that without this precaution the tumour has separated while the patient was asleep, fallen into the pharynx, and, if small, has been swallowed, or, if large, has almost suffocated him.

With this instrument, or some modification of it, I have operated in four cases: in one the tumour was as large as an orange, and there was not room for the finger to get behind it, even if the finger were long enough; in two others, one the size of a walnut, the other somewhat larger, it also proceeded most satisfactorily; in one small one I only snared half of the tumour, and I could not afterwards pass a ligature on the remaining portion of it, it was so small. This is the only case where the operation did not succeed perfectly.

The foregoing remarks refer to one form of polypus, of which there are different species;—it is that which is denominated the benign or non-malignant polypus, which, small at first, may increase without undergoing any alteration in its character so as to cause the death of the patient; it destroys solely by secondary effects, such as pressure on the brain, or some vital part. But besides this, I have no hesitation in saying that there is another form, a malignant polypus, which is malignant from its very commencement, and will most certainly end in the death of the patient, for its course cannot be arrested. Palliative treatment may render its progress slower, but severer measures will only hasten its fatal termination; it destroys not from its bulk, but from a malignancy inherent in its nature, which acts as a poison on the constitution. Of this description I have already seen three well-marked cases. I would not have made any remark on this form of polypus, but that Mr. John Bell, in his otherwise excellent work on this subject, denies the existence of it. He says a benign

polypus may so increase as to destroy life, and hence may be termed malignant, and he uses much plausible reasoning in his endeavour to establish this as the only form of polypus, whereby he might lead an inexperienced surgeon to adopt the very erroneous notion, that in every case of polypus he may, with impunity at least, if not with benefit, resort to a severe operation for the removal of the tumour.

Dublin Quarterly Journal, Nov, 1848, *p.* 373.

88.—*A Cheap Kind of Artificial Palate.*—[An anonymous correspondent of the Lancet says:]

I have found the substance, gutta percha, suitable for making artificial palates, very easily moulded on a cast of the mouth into the necessary shape, and retaining its firmness and smoothness unimpaired by the temperature to which it is there subjected. Kneaded out into a smooth sheet, about the thickness of a sixpence or a shilling, and pressed into the proper form,—the edges accurately following the sinuosities of the teeth, and a hooked process or two of the same material adjusted in the usual way,—it will be found to answer very well, being smooth, light, and firm. If required, a slight rim of gold, fitted to a few of the teeth, may be fixed to the edge of the gutta percha. If care be used to mould the material equably and smoothly, it will be more agreeable in the mouth than a metallic body. When the Schneiderian membrane is too tender to permit the use of the sponge and plate,—a period with some patients of long duration,—this simple, cheap, and effective instrument will be found valuable. It may supersede the use of the soft crumb of bread, soaked dossils of soft lint, &c., which are used as temporary expedients to close the orifice in cases where bones are coming or have recently come away. But even when the membrane has become firm, a palate of this material—with or without a piece of prepared caoutchouc adherent to the upper part of the gutta percha, so as to press into the exact shape of the orifice, and form a sort of air-tight valve—will be as agreeable to most of the patients as the instrument commonly employed.

Its advantages are, its cheapness, lightness, and absence of unpleasant taste or feeling. For poor patients, who are usually prevented, by the expense of gold or platinum palates, from obtaining relief, I hope gutta percha will be made available.

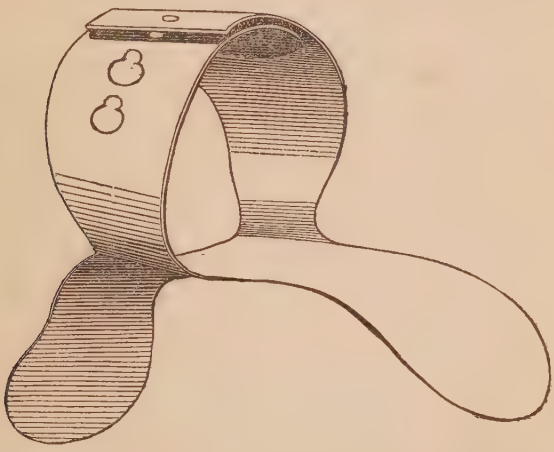
In cases of congenital deficiency, fissure of the palate, &c , I think considerable relief might be afforded by attaching to a hard palate of the gutta percha an artificial soft one, of prepared caoutchouc. The caoutchouc adheres easily and permanently to the warm gutta percha, and if properly prepared, and of a suitable flexibility, thickness, and shape, it might, I should think, very materially aid the great numbers of persons who suffer from this distressing deformity. The expense, at any rate, need not henceforth prevent any one from seeking relief.

The soft palate I have not tried: for an artificial hard one I have

found the gutta percha practically useful. Whether it may resist the action of the fluids of the mouth for any length of time remains to be seen. If so, I cannot see any objection to the employment of this substance for the purpose named. In the hope that it will be fully tested, and that it may, perhaps, relieve some suffering, I offer the hint to the professional public through your columns.

Lancet, June 10, 1848, *p.* 636.

89.—*Note on the Mouth Speculum.*—By Dr. A. Fleming.—I first saw this useful instrument about two years ago in the wards of M. Rayer, at La Charité, Paris. It consists, as the annexed wood-cut shows, of a circular band of metal (German silver) to keep the



mouth open, while a broad horizontal plate, passing backwards, serves to depress the tongue. It facilitates greatly all operations on the mouth and throat, and is especially useful in children. By its aid, ulcers on the fauces may be cauterized much more accurately and more efficiently than without it. It is made of two sizes, for children and adults; and each speculum can be varied in size, to a certain extent, to adapt it to individual cases. Charriére of Paris has constructed a mouth speculum on the principle of his speculum vaginæ. It is considerably more expensive than the simpler one here shown; but has this advantage. that the same instrument can be enlarged or diminished in size to suit all ages. Specimens of both forms may be seen at Mr. Young's, cutler, Edinburgh. As the mouth varies much in length in different persons, I have suggested to Mr. Young, that in future he should make the tongue portion of two pieces, which, by a simple mechanism, may be so

arranged as to admit of that portion being lengthened or shortened, as occasion may require.

Monthly Journal, Sept., 1848, *p.* 171.

90.—ON WOUNDS OF THE INTESTINES.

By Bransby Cooper, Esq, F.R.S., &c.

[When after a wound of the abdomen, we find symptoms of wounded intestine, without there being protrusion, we must keep the patient perfectly quiet, administer stimuli if needed, but insist upon total abstinence from food for some time.]

When the wounded intestine protrudes, its contents may be perceived issuing from the wound, although the opening itself appears to be closed by the protrusion of the internal mucous membrane. The size of this opening, and its direction, as to whether it be longitudinal or transverse, must now regulate the treatment to be adopted. If the wound be very small, its edges may be pinched up by a pair of forceps, and a thin silk tied round so as to include the whole of the wound; the intestine is then to be returned into the cavity of the abdomen, but must be kept as close as possible to the external wound. The ligature produces a sloughing of all the included tissues, and adhesive inflammation of the peritoneum being set up, an external wall of plastic matter is formed around the dead part, which ulcerates off into the intestines, and is carried away with the fæces. Sir Astley Cooper successfully employed this method of treatment in one or two cases in which the intestine had been inadvertently wounded in the operation for strangulated hernia.

When the opening in the bowel is large, different kinds of stitches are used to keep the edges of the wound in apposition. The uninterrupted suture, however, or glover's stitch, is, I believe, the best, but the finest procurable needle and silk must be employed; and, after the bowel has been returned into its natural cavity, the same precaution as I have already mentioned to keep it in proximity to the external wound, should be adopted. When the intestine has been completely divided by a transverse wound, various plans have been recommended for re-establishing its continuity. For this purpose, some animal substance of a cylindrical form, such as the trachea of a sheep, has been introduced. This serves as a sort of mould, and enables the surgeon to keep the edges of the severed bowel in juxtaposition during the application of the suture, the foreign substance easily passing away afterwards with the stools. Some have recommended that the upper extremity of the intestine should be passed into the lower, and that a ligature be then applied around the whole. This produces contact of the peritoneal coat of the intestine, above and below the ligature, and, as adhesive inflammation is set up, an effusion of plastic matter soon covers the ligature, and re-establishes the continuity of the external part of the canal, the ligature itself, and the con-

stricted portion, ultimately sloughing off internally, and being conveyed away with the excretions. It has been objected to this operation, that, in bringing the severed ends of the intestine together, a serous is presented to a mucous surface, and that these two structures are ill fitted for union; but it is not intended in this operation that they shall unite; the union is caused by the effusion of the plastic matter from the external surface above and below the ligature, and from serous to serous membrane, the whole of the intestine included in the ligature being destroyed and sloughing away. M. Jobert has proposed, as an improvement in the above operation, to invert the inferior extremity before the superior is introduced. In that case, two serous membranes are brought in contact, and the union may take place at once between them; but, under these circumstances, the invaginated portion would not be included in a ligature, but retained in position by suture.

After all, however, from the result of the experiments, it remains questionable whether, in complete division of an intestine by a transverse wound, it is not better to establish an artificial anus and leave nature to her own efforts for the ultimate restoration of the patient; and this does not indeed appear to be so difficult a process as may be supposed, particularly if nature be judiciously assisted by the art of the surgeon.

Almost immediately after the divided intestine has been replaced in the cavity of the abdomen, an adhesive inflammation shuts out the open extremities of the intestine from the peritoneal cavity, so that after a few hours have elapsed the stitch employed to secure the wounded intestine near the external wound in the abdomen may be removed, and as soon as the feculent matter passes partly through the latter the patient may be considered safe, as far as refers to the danger of extravasation of the fæces into the abdomen. But as the formation of an artificial anus renders the patient loathsome to himself, and unfitted for a social state, subsequent means must be adopted to re-establish the integrity of the intestinal canal.

With this view, one of the first steps is to diminish as much as possible a tendency which the upper portion of the bowel has to prolapsus or eversion of its mucous membrane; and this object may be attained by keeping the fæces in a semi-fluid state, and by maintaining slight pressure upon the extremity of the protruded part. The lower portion of the intestine is liable to contract at its extremity, so that the ready passage of the contents of the upper portion is prevented from passing into the lower; this may be in some measure obviated by the use of enemata, which stimulate the natural action of the bowel and prevent it from falling into the abnormal condition always produced by disuse. The strictest attention to cleanliness of the external wound should constantly be observed, otherwise the presence of the feculent matter will interfere very materially with the progress of the healing process. As the wound goes on uniting it gradually contracts into a narrow fistula: this contraction is still further promoted by gentle pressure; and, after a while, as the fæces meet with some resistance in the direction of

the wound, they acquire a tendency to pass on through the natural passage—a change which is first indicated by the escape of flatus and mucus per anum; upon which enemata should be freely employed to re-establish the natural function of the rectum and anus.

By such treatment, a recent artificial anus may very generally be cured, but if neglected, the lower part becomes so much retracted, and at the same time contracted, as to render the cure almost impossible. Dupuytren has, however, proposed the removal of the obstruction termed the "eperon" by means of a pair of forceps made to include it,—one blade of the forceps being inserted into the upper, the other into the lower opening of the intestine; and being closed with sufficient force to produce sloughing of the included valvular portion, after which a free communication between the two parts of the intestine will be re-established. The same attention must be paid to the external wound as under the circumstances I have before described.

In gun-shot wounds where the ball has penetrated the parietes of the abdomen and wounded a viscus, nature has sometimes effected the reparation of the part—the ball passing away with the fæces. A musket ball has also been known to penetrate and lodge in the urinary bladder, from which it has afterwards been removed encrusted with calcareous matter, the patient ultimately recovering.

Medical Gazette, Aug. 18, 1848, *p.* 265.

91.—CASE OF OPERATION FOR THE RADICAL CURE OF HERNIA.

By Bransby Cooper, Esq., F.R.S., &c.

[Mr. Cooper thinks most of the operations proposed for the radical cure of reducible hernia unwarrantable, from the great danger of peritonitis. He was, however, once induced to perform M. Gerdy's operation for a scrotal hernia which could not be kept up. He tells us that the patient,]

Being placed on his back on a table, with his chest and thighs raised, I passed the forefinger of my left hand as high up as I could through the external ring into the inguinal canal, pushing before it a portion of the integument of the scrotum. I then introduced a director, along which I passed a needle fixed in a wooden handle, and armed with a double silk ligature. The needle was passed to the very extremity of the invaginated skin, and was pushed through the tendon of the abdominal oblique muscle and the skin, and brought out an inch and a half above Poupart's ligament. One end of the silk was then retained by an assistant, and the needle drawn back, and pushed through a second time in exactly the same manner as at first, but including about four lines of the invaginated integument. The two free ends were then tied over a piece of bougie, with a sufficient degree of tension to retain the

intruded portion of integument firmly within the inguinal canal. A piece of lint wrapped around a director and dipped into liq. ammon., was passed into the "cul de sac" of skin, and the surface well rubbed with it, to remove the cuticle and promote inflammation in the cutis, for the purpose of obliterating this integumentary canal, and forming a plug sufficiently firm to prevent the future descent of the hernia. The application of the ammonia produced intense pain: this was, however, relieved by opium. Four days subsequently to the operation, the ligature was removed, as purulent discharge was freely established. Pressure was kept upon the part by compresses, to promote perfect union, and in about three weeks a weak truss was applied; but he still remained in the hospital another fortnight, after which, as the hernia did not descend, he left. About two months after he had returned to his employment, which was of a violent character, the hernia partially descended; but, by the use of a stronger truss, he has ever since been able to continue at work, being, however, sometimes subject to a slight return of the affection: this man may be said to be relieved, but not permanently cured, by the operation.

Medical Gazette, Sept. 8, 1848, *p.* 404.

92.—*On the Treatment of Irreducible Hernia.*—By Bransby Cooper, Esq., F.R.S., &c.—[Mr. Cooper gives the following case of the mode of treating an irreducible hernia without obstruction, the object being of course to convert it into the reducible form.]

A young farmer, who was the subject of irreducible hernia, was sent to me by Dr. Baddeley, of Chelmsford. The hernia was of two years' standing, and so anxious was the patient to obtain relief, that he was willing to submit to any system of treatment that promised to afford it. I prescribed, in the first instance, purgatives, to produce complete evacuation of the bowels, and ordered him to remain in bed, with his shoulders and thighs raised, so as to perfectly relax the abdominal muscles. A low diet was strictly enjoined, and a grain of blue pill and a quarter of a grain of tartarized antimony given twice a day, with the intention of stimulating the absorbents to the removal of the fatty matter of the omentum. Ice was frequently applied, and also enemata, to keep the intestines perfectly empty. So anxious was the patient for the removal of his complaint, that he submitted to all these restrictions during the space of five weeks, but in that time no favourable change had been produced beyond a slight diminution in the size of the tumor. At last, quite despondent at this want of success, in a fit of impatience he one morning jumped out of bed, when, to his great surprise and joy, the tumor suddenly disappeared. He immediately applied his truss, and has never experienced the least return of the protrusion; taking, however, the precaution of always wearing a truss even in bed.

From the successful result of the treatment in this case, I have been induced to repeat it in several others, both in public and pri-

vate practice, and have found it very successful. If, however, your efforts should prove abortive, and the hernia remain irreducible, an apparatus should be contrived to support the tumor and defend it from external injury; and, at the same time, the most scrupulous attention must be paid by the patient to his diet, both as to quality and quantity; for, by merely a slight inattention to the rules laid down, he subjects himself to a return of the disorder, and consequent imminent danger to his life.

Medical Gazette, Sept. 8, 1848, *p.* 406.

93.—*On the Treatment of Strangulated Hernia.*—By Bransby Cooper, Esq.—[After speaking of the application of the taxis, and the propriety, in many cases, of an early operation, in case other means should prove unsuccessful. Mr. Cooper goes on to say,]

When symptoms of strangulation come on progressively, as in old hernia, some delay may be permitted, even beyond that time required for the application of the remedies already recommended, and even when those prove ineffectual I have frequently succeeded by giving large doses of opium,—in some cases as much as three or four grains. Constipation being one of the most urgent symptoms of hernia, and opium having a tendency to produce that condition of the bowels, you will naturally ask, for the rationale of this treatment. I believe that the opium allays irritation and checks sickness, by diminishing the antiperistaltic motion of the intestines, and thus produces a condition of quietude through the whole intestinal canal, well adapted to improve the state of the protruded parts. I have never recommended opium by choice as a substitute for the operation; but in four or five cases in which the patient would not submit to that ordeal, I have employed it with perfect success. I first acquired a knowledge of this practice from the late Mr. Bush, of Frome, in Somersetshire, who informed me that although at one time of his life he had had to perform the operation for hernia several times in the course of every year; after he adopted the use of opium he rarely had occasion to resort to any surgical measures.

In July 1838, I admitted a man, 64 years of age, into Guy's Hospital, who was the subject of inguinal hernia of five days' standing: he suffered from constant vomiting, insuperable constipation, and, indeed, from all the symptoms of strangulation of the bowel. I attempted to reduce the hernia, but could not succeed, and therefore proposed an immediate operation. To this the patient would not, however, accede. I then ordered him three grains of solid opium, in about four hours; the sickness was much relieved, and some flatus passed per anum, but the constipation still remained. At twelve o'clock the same night, my dresser, Mr. Coleman, repeated the dose of opium. The patient passed a very quiet night, and in the morning the vomiting had ceased, and a copious motion was passed, during which action the hernia returned into the abdomen. The patient perfectly recovered.

In June 1839, a married woman, æt. 54, was admitted into Esther

ward, with a femoral hernia on the right side. The tumor was about the size of a small orange, tense, and very tender to the touch. The patient was placed in a warm-bath, an enema administered, and the taxis applied, but unsuccessfully. I consequently proposed the operation: the patient would not, however, consent to it. I therefore ordered, for the time, ice to be applied to the tumor. The next day all the symptoms remaining unaltered, I again attempted the reduction, still, however, without effecting my object; and I therefore ordered her to take four grains of solid opium. The symptoms were soon relieved; a castor oil enema was administered, and on the second evening after her admission into the hospital the bowels were slightly evacuated, and my dresser, Mr. Day, succeeded in reducing the hernia. This patient also recovered.

In another case, I was sent for by Mr. Odling, to see a lady at Islington, who was suffering from all the urgent symptoms of strangulated hernia. The warm-bath had been employed, ice applied to the tumor, and several attempts made to reduce it by the taxis. This treatment, however, was not successful, and as the patient would not submit to an operation, four grains of opium were given; the symptoms were soon all relieved, and early the next morning the bowels were evacuated, after which the patient herself reduced the hernia by the application of very little force.

An old gentleman, who lived in Great Windmill Street, and who had long been the subject of irreducible hernia, was suddenly seized with symptoms of obstruction of the bowels, which did not yield to the usual remedies; and as sickness, as well as other signs of insuperable constipation came on, Sir Astley Cooper was sent for. He, however, happened to be unwell, and I went in his stead to visit the patient. I ordered enemata, ice to the tumor, and calomel and opium to be taken to allay the vomiting. No relief was, however, obtained, and I consequently proposed the operation. This was at once objected to, and I was, therefore, constrained to employ some medical treatment. Four grains of opium were administered, and five hours afterwards I again saw the patient: the sickness had ceased, but no evacuation had yet taken place. I then recommended a warm gruel injection, with an ounce of castor oil, and in the evening, the alvine excretions passed freely, and the patient shortly recovered.

Mr. Shelley, of Epsom, had a patient, a lady, 40 years of age, under his care, who, during three days, had suffered from all the urgent symptoms of strangulated hernia, and when first seen by Mr. Shelley, she had stercoraceous vomiting. He attempted to reduce the hernia, but not succeeding, recommended the operation. The patient refused to submit to this, and Mr. Shelley, jun., who had been one of my dressers, and who had seen the effect of opium in one or two cases in Guy's Hospital, immediately gave the patient two grains of solid opium, and further ordered a grain to be taken every two hours. She took four doses before the sickness and pain ceased, but next day the bowels were relieved, the hernia was easily reduced, and she perfectly recovered,

Operation for Strangulated Bubonocele.—This operation consists in enlarging the opening of the internal abdominal ring through which the hernia has escaped. To effect this object, the inguinal canal must be laid open for the purpose of exposing the *intrinsic* coverings of the hernia; an incision is made in the course of the tumor, commencing from within an inch of the internal, and extending to the external ring, cutting through the skin and superficial fascia, so as to expose the tendon of the external abdominal muscle: this tendon is then to be divided to a similar extent, and in the same direction as in the first incision. The hernial tumor enveloped by the internal abdominal fascia and peritoneum will now be exposed, partly overlapped, perhaps, by the free edges of the internal oblique and transversalis muscle; these may, however, be turned upwards off the tumor by means of the finger, and without cutting, so as to enable you to proceed to open the internal abdominal fascia (often termed the fascia spermatica interna). A director is now to be passed into the opening which has thus been made, and being gently pushed upwards, enters the cavity of the abdomen: the force required for this being in proportion to the tightness of the stricture. A hernial knife is inserted into the groove of the director, and passed along until it enters the abdomen, having, consequently, been pushed beyond the point of the constriction; the cutting edge of the knife is then turned forward so as to divide the stricture; the division being made directly upwards; and, indeed, any inward direction is to be especially avoided, owing to the proximity of the epigastric artery. The division of the stricture external to the peritoneal sac usually proves sufficient, and the hernia may be returned by gentle manipulation; if this be effected the operation is completed, but if there be any adhesions between the contents of the hernia and its peritoneal sac, or any other cause which prevents the return of the hernia, the peritoneal sac itself must be laid open for the purpose of removing the obstruction.

The operation of dividing the stricture external to the sac may, I think, be looked upon as involving little more danger than the ordinary application of the taxis, for there can be no doubt that the great danger in the usual operation for hernia consist in opening the peritoneal cavity, and I have frequently had patients recover after the external division of the stricture with as much freedom from dangerous symptoms as when the hernia is returned by the application of the taxis alone. On January 5th, 1844, I operated on a boy for strangulated hernia, the strangulation having existed for two days. I divided the stricture external to the sac, and was able to return the intestine by a very slight exertion of force; not a single bad symptom supervened, and the patient did not appear to suffer more than in reduction by the usual method, without operation. I had also a patient in Cornelius ward, on whom I operated for a strangulated inguinal hernia, on which Mr, Key had operated three years before; in this case I divided the stricture without opening the sac, and to my great satisfaction the contents of the sac were easily reduced; the patient did not present any symptom of having been

subjected to an operation, and even the collapse almost invariably attendant on the opertion for hernia was in this case wholly absent; and I might enumerate several cases equally successful.

To Mr. Key is attributable the introduction of this plan of treatment in cases of recent hernia, as formerly surgeons recommended the division of the stricture external to the sac only in cases of very large hernia, and such as were of long continuance.

[After mentioning the caution requisite in passing the director and hernia-knife through the stricture, so as to avoid wounding the intestine, Mr. Cooper says:]

The liability to wound the intestine during the operation exists equally in every kind of strangulated hernia. In the operation, fresh difficulties may present themselves even after the stricture has been divided—viz., in returning the intestine into the abdomen. The difficulties here may arise from the quantity of intestine protruded, from its distension with flatus, its abnormal thickening, or its adhesion to the hernial sac.

In Sept. 1837, I operated at Guy's Hospital on a young man who was admitted with strangulated inguinal hernia. No difficulty occurred during the operation until after I had divided the stricture, when I found it totally impossible to return the bowel into the abdomen. I punctured the intestine with a grooved needle, to let off the gas with which it was distended, and the patient was put to bed, the head and lower extremities being raised, and the tumor covered by a light cloth kept constantly wet with warm water. After he had been two hours in bed, he passed a large quantity of flatus per anum, and my dresser then succeeded in replacing the intestine. The man died, however, in a few days, of peritonitis, the contents of the bowels not having been evacuated. A post-mortem examination was made, but no cause could be found for the difficulty in returning the hernia: the stricture had been freely divided, and there were no adhesions of the intestine, but it was much thickened, and had become inelastic and of a leathery consistence. Mr. Porter, of Dublin, lately described a case to me, in which, after having opened the sac, and divided the stricture, he failed in every attempt to return the protruded intestine into the abdomen, and his patient died in three days with symptoms of strangulated hernia. On dissection, it was found that the colon and part of the ileum had protruded under Poupart's ligament, and that a portion of the ascending colon had fallen over the entrance of the ileum into the caput coli, so as to completely close the valve, and thus produce the symptoms of strangulated hernia, and prevent the return of the protruded part, as the air and other contents of the sac could not be pressed back through the ilio-colic valve. In August, 1841, one of my colleagues admitted a patient into the hospital who was suffering from a large strangulated scrotal hernia. The hot bath, ice, and taxis, were all tried without success, and, the operation being therefore determined on, the sac was laid open, and the stricture divided, but it was found that even then the in-

testine could not be returned into the abdomen, in consequence of its being enormously distended with fluid; this was evacuated by a small puncture. The patient died, however, in a very short time. If adhesions be the cause of the difficulty in returning the intestine, they must be divided, whether they are to the omentum or to the sac itself, and I have not found this operation so difficult as we might have been led to expect, as the adhesions are usually of recent formation. They may, however, be so firm and extensive that an attempt to divide them would be unjustifiable. The intestine must, under these circumstances, be left in the sac, and of course remains, in that case, under the form of an irreducible hernia. The prognosis is then very unfavourable.

In the cases I have just described, where, owing to its great distension, the bowel could not be returned, I believe that it is better practice not to puncture it either for the evacuation of air or fluid; but after the stricture is freely divided, the patient should be placed in bed, and the protruded intestine covered with linen dipped in warm fomentations, leaving it to the chance of its spontaneous action, in which case it would be easy to return the protrusion into the abdomen.

Medical Gazette, Sept. 15, 1848, *p.* 438.

94.—*Observations on Femoral Hernia.*—By Bransby B. Cooper, Esq., F.R.S., &c.—[Mr. Cooper makes the following remarks with reference to some of the difficulties met with in cases of femoral hernia. He says:]

In the first place, be most cautious in your diagnosis, and, however certain you may feel as to the true nature of the tumor, always commence the operation rather with the deliberation of one about to enter upon an exploration, than with the confidence only admissible under circumstances of indisputable certainty.

Although it is easier to distinguish a femoral than it is an inguinal hernia, yet there are abnormal conditions relating to the seat of femoral hernia, which complicate its diagnostic marks. An enlarged gland in the upper part of the thigh concomitant with sickness and obstruction in the bowels, may offer great difficulty as to the mode of proceeding. If, under these circumstances, the symptoms be of recent occurrence, and delay, therefore, admissible, internal remedies may be first had recourse to, and the taxis employed; but should the obstruction have existed for a considerable length of time, and the patient be consequently in danger, an exploring operation should be no further delayed. Supposing an enlarged gland be exposed, it should be removed, and the investigation continued; for it is very probable that, under the described circumstances, a hernial tumor may yet be discovered behind the enlarged gland. Sir Astley Cooper mentions a case, in his published lectures, of a patient being admitted into Guy's Hospital, with a strangulated femoral hernia, to which he had had a poultice applied for three days, under the supposition that it was a bubo.

When the operation was performed, the intestine was found in a state of gangrene, and the patient died. Another case is mentioned, in which a surgeon not only poulticed, but also opened a femoral hernia, believing it to be abscess, and the patient died two days after. I witnessed the same mistake in Norwich, several years ago, but in that case the patient survived, and the artificial anus proved only a temporary inconvenience.

Psoas abscess and femoral hernia may co-exist, and should exploration be necessary from the continuation of hernial symptoms after proper remedies have been ineffectually administered, the surgeon is not only justified, but bound to investigate the nature of the swelling by surgical exploration. Varicose veins, or tumors of any kind in this region of the thigh, may lead to the necessity for similar treatment as in the cases alluded to. I must again also caution you, not to confound inguinal with femoral hernia; for, if in either case the one be mistaken for the other, neither the force employed in the manipulation by the taxis, nor the surgical operation for the division of the stricture, will be applicable to either indiscriminately.

In making the first incision, without due caution you might easily wound the saphena major vein; you should therefore always previously ascertain the precise position of that vessel. Immediately under the skin you may meet with some difficulty, in consequence of the presence of enlarged absorbent glands, which may require to be removed to enable you to prosecute the further steps of the operation. The fascia superficialis you will also sometimes find much thickened, at others much attenuated, and you should be prepared for this variation, or you may in some cases hardly recognize the structure when exposed to view, and may go on dividing the fascia into several layers, so as to complicate the operation, and preclude the possibility of knowing how far you have proceeded. The laying open the sheath of the femoral vessels is in all cases a difficult part of the operation, as that tissue is not very easily distinguished, either from the superficial fascia, or from the hernial sac. Usually, however, a large vein will be found between the sheath and the superficial fascia, and some fat between the sheath and the sac, (the peritoneum) but where neither the one nor the other be present, great caution is required. The division of the stricture is very embarrassing to a young operator, from the great depth of the constriction, and in passing the director under it, it must be pushed deeply backwards in the thigh, before it is directed upwards under Poupart's ligament. In femoral hernia I have found the division of the stricture external to the sac more frequently effective than in inguinal, but it requires some caution in pushing the contents of the sac into the abdomen, that the sac and contents do not all go up together, ("en bloc") and thus at once convert an external into an internal hernia—a result which would most probably terminate fatally. I once had this misfortune occur to me, and the post-mortem examination proved the fact, —even in the common application of the taxis only, it has been known to result.

If compelled to open the sac, you will generally find that a considerable quantity of fluid escapes, sometimes before, but more frequently after the stricture has been divided. I have seen so much flow out as to give rise to some apprehension that the intestine had been wounded - an accident more likely to occur in femoral than in any other species of hernia.

Medical Gazette, Sept. 29, 1848, *p.* 521.

95.—*On the Use of the Taxis in Strangulated Hernia.*- By Dr. Jonathan Toogood.—In corroboration of the opinion of Mr. Hunt, that "the taxis carefully and patiently applied will generally succeed in reducing a strangulated hernia," I beg to state that in an extensive general practice of forty years, during thirty-three of which I filled the situation of Senior Surgeon to the Bridgwater Infirmary, I have never had occasion to perform the operation but once, and then in a case of congenital hernia. I believe I have met with the average number of cases, and have frequently been called into consultation with others when the operation was considered necessary. The taxis has been so successful that I have rarely had recourse to bleeding, and never to the tobacco glyster. I have often employed the warm bath advantageously, and particularly in one case which I despaired of reducing, and went home (a distance of three miles) for my instruments, leaving my patient in a warm bath, under the care of my assistant. I was detained by an accident which occurred immediately on my return before my own house, for more than hour, and when I reached my patient, I found him still in the bath, (full two hours having elapsed since he was placed in it,) nearly parboiled, but not very faint, and on removing him, the hernia was returned with very little trouble.

Provincial Medical and Surgical Journal, Oct. 18, 1848, *p.* 587.

96.—*On the Operation for Strangulated Hernia.*—By Bransby Cooper, Esq., F.R.S., &c.—[Mr. Cooper observes, that though it is always advisable to attempt the division of the stricture external to the sac, yet it is not always possible to do so: and there are certain circumstances under which the opening of the sac becomes imperative. He says.]

When after the division of the stricture, the hernia still remains irreducible, it shews that the contents have undergone some change, which tends to maintain them in their abnormal situation. To overcome this obstacle to the reduction of the hernia, the sac must be laid open: this operation requires very great caution, for it not unfrequently happens that there are adhesions between the sac and its contents. When the opening is made, the omentum is generally first seen: but should intestine lie in front, it is judicious to cover it with omentum, so that in passing the finger or director upwards towards the neck of the sac, the intestine is not so much exposed to physical injury. If there be any obstruction to the passage of the finger through the neck of the sac into the cavity of the abdomen

it is evident that the stricture has produced a thickening or constriction of the sac itself; this might indeed have gone on to such an extent as to require division by the knife, which in that case should be passed upwards into the abdomen, guarded by the finger or with the director. In this operation there is great danger in the liability to wound the intestine in passing the knife through the constricted part of the sac. To avoid this, I invented a knife, the cutting edge of which is protected by a slide, so that it may be passed with safety through the constricted neck of the sac, and then being exposed by withdrawing the guard, the stricture may be divided without the least danger to the intestine.

When the constriction in the neck of the sac is overcome, it must be ascertained whether the protruded bowel is in a fit condition to be returned into the cavity of the abdomen; if it be of a dark mulberry colour, and does not change its appearance when the constriction is removed, the blood in its vessels must have become coagulated, and death of the part consequently supervened; if this be the case, it will also usually be found that the intestine has lost its natural elasticity, and pits upon pressure. If a bowel were in such a state, it would clearly be unfit to be returned into the abdomen, but at the same time I should hesitate before I laid it open, and should apply warm fomentations or a slight poultice, in the hope that restoration may be effected. Should, however, this hope prove abortive, the bowel must of necessity be opened, and an artificial anus established. In any case in which there existed the slightest hope that the bowel still admitted of restoration, and that the blood in its vessels remained fluid, I should return it to the abdomen, as the restorative process is much more likely to proceed when it is in its natural cavity, than if it remained in the hernial sac; and even should it subsequently sphacelate, adhesive inflammation would be set up from within, and preclude the liability of extravasation of the contents of the intestine into the peritoneal cavity. In returning an intestine under these circumstances, care should be taken that it is merely placed at the mouth of the neck of the sac, so that if extravasation should occur, the effused matter may be at once propelled through that outlet. Should it happen in the division of a stricture that the intestine be wounded, notwithstanding every precaution, the edges of the wound should be taken up by the point of a pair of forceps, and silk ligature passed round the small portion thus taken up; the silk will soon be covered by plastic matter, thrown out from the peritoneal coat, while the inflammatory action produces ulceration through the mucous membrane, and the silk is discharged by the intestinal canal. Sir A. Cooper mentions two or three cases where recovery was complete under this mode of treatment. If, however, the opening into the bowel be of any extent, it would not be safe thus to include the whole of it in a ligature, as by doing so the calibre of the injured intestine would be very much diminished. When the wound is therefore too large to be thus secured by ligature, it should be closed by means of the uninterrupted suture;

but I should in that case recommend that the intestine be not returned into the abdomen, but either that it be left in the sac or confined by a stitch to the mouth of the opening, for should any portion of the suture give way before the wound is covered by the action of the adhesive inflammation, extravasation into the abdominal cavity, and consequent death of the patient, would be inevitable.

Some difficulty occasionally occurs in returning the intestine into the abdomen, even after the sac is opened, owing to adhesion having taken place between it and the sac, or between the intestine and omentum, or perhaps both: when this is the case the adhesions must be carefully separated before the bowel can be returned. Returning the intestine and omentum together should always be avoided, as their adhesion to each other may prevent the bowel, even after it is returned, from being capable of performing its natural function. The condition of the omentum is as much a matter for the consideration of the surgeon as that of the intestine itself; for by inflammation, the former, which is naturally a delicate and attenuated membrane, may be converted into a solid mass, totally unfitted to be returned into the abdomen. It then becomes a question whether the portion thus altered should be removed or left in the hernial sac: I am an advocate for leaving it in the sac, for if it be removed by incision it will be necessary to apply a ligature to stop the bleeding from the divided vessels, and that process is very liable to produce peritoneal inflammation; a further advantage is also derived from leaving the omentum in the sac, as it sometimes becomes adherent to the aperture through which it had passed, and thus prevents the future descent either of omentum or intestine. Should the omentum have become sphacelated, the dead part may be removed with safety, provided due care be taken to avoid the division of the vessels of the neighbouring living portion. It sometimes happens that when living omentum has been left in a hernial sac, it will afterwards pass into a state of sphacelus, even although the external ring may have entirely united. This change is marked by a train of symptoms that clearly indicate the alteration which is taking place in the omentum; for notwithstanding that the bowels continue to perform their natural office, the constitutional powers of the patient become suddenly depressed, the pulse feeble and irregular, often attended by hiccup; and the wound, which had healed, again opens, and a fœtid odour is emitted from its surface: poultices should be immediately applied to the part, the sloughing omentum removed, and chloride of lime, or a weak solution of chloride of zinc, employed to destroy the fœtor and assist in the separation of the dead part. Tonics must also be administered, and if there be any tendency to sickness, carbonate of ammonia, in a state of effervescence, and combined with some narcotic, may be given.

Medical Gazette, Oct 13, 1848, *p* 604.

97.—*On the Operation for Internal Strangulation, or Obstruction of the Bowels.*—By Bransby Cooper, Esq., F.R.S., &c.—[The question of what are the circumstances which justify us in laying open the abdominal cavity, either for a hernia reduced, *en masse*, or for internal strangulation or obstruction, is still, Mr. Cooper observes, *sub-judice*. It is quite certain, he says, that the operation should only be performed as a last resource: for though the delay diminishes the chance of success, yet we find that many cases, apparently reduced to the last extremity, have recovered under nature's own reparative efforts. As to the mode of operating, Mr. Cooper remarks,]

When abdominal exploration is determined on, I believe that the linea alba ought to be the point chosen for the performance of the operation; for, although the locality of the symptoms may lead the surgeon to guess at the precise point at which the obstruction is situated, still, as you avoid the necessity for the division of muscular fibre, and the liability to hemorrhage, as well as deriving the advantage to be obtained from the accurate knowledge of the relative position of the subjacent parts, acquired by commencing the operation from one precise point, this region is the most appropriate for the operation.

When obstructions occur to the large intestines, as from stricture in the rectum, or in the sigmoid flexure of the colon, the operation necessary for the relief of the patient is the formation of an artificial anus. This is to be effected by opening the colon in the posterior lumbar region, deviating in this case from the practice recommended in the exploration, where the point of obstruction is doubtful. The well-marked symptoms and history of the case, will, however, preclude any difficulty in forming a just diagnosis.

Medical Gazette, Oct. 13, 1848, *p.* 606.

98.—*Operation for Hernia according to Mr. Gay's Method.*—By Dr. A. Catherwood, Hoxton.—[This was a case of femoral hernia in a female. After the strangulation had existed somewhat less than twenty-four hours, the use of the taxis, aided by the application of ice to the tumour, and a purgative enema, having been ineffectual, Dr. Catherwood operated. He says,]

I began the operation, after chloroform had been exhibited, by making an incision, about an inch in length, between the tumour and the spine of the pubis, obliquely, from above downwards, and from without, inwards, the highest point of the incision being over the inner part of the femoral ring. After completely dividing the superficial fascia, the tip of the finger was readily passed to the angle between Gimbernat's ligament, and the neck of the hernial tumour, and a section of the edge of the ligament made with a concealed bistoury. A few fibres were now found to hold the tumour, which were divided by bringing the edge of the bistoury directly forwards. By making a very gentle pressure on the sound skin, the rupture immediately returned. The whole operation occupied

but a very short space of time. Within ten minutes the bowels were moved, and their action continued at short intervals during the course of the night.

Observations.—This mode of operating possesses such great advantages over the commonly-adopted method, that it only requires to be thoroughly known and understood, to receive the sanction of the profession.

1. The external incision is only just large enough to admit easily the forefinger.
2. Healthy structures are alone interfered with.
3. The wound heals by the first intention.
4. A truss may be worn three days after the operation.
5. The pain is inconsiderable, and the danger most materially lessened.

Lancet, Aug. 26, 1848, *p.* 235.

99.—*New Instrument for the Cure of Exomphalos.*—By W. N. Spong, Esq.—Well regulated, constant, and equable pressure, seems all-sufficient for the cure of this disease in infants, and the elastic belt, presently to be described, answers the purpose effectually. It consists of a piece of vulcanized caoutchouc, about six inches in length, and three inches and a half in breadth, to either end of which is attached a piece of fine, white linen web, a species of girthing, used by saddlers, and manufactured of about the same breadth,) with tapes appended, which are tied behind the back. The piece of vulcanized india-rubber should be of such a length, according to the size of the child, as will embrace rather less than one-third of the circumference of the abdomen, the circle being completed by the pieces of linen web; this material is sufficiently stiff to prevent its creasing.

Vulcanized caoutchouc is admirably adapted for many surgical purposes; it possesses valuable elastic properties, and every day some new application is found for it in the arts. Its elasticity admits of the various movements of the child, of its crying, coughing, &c.; and in whatever position the body is placed, it ever keeps up a determinate pressure. The patient soon becomes accustomed to its use, and it may be worn advantageously by night as well as by day; moreover, it retains its position accurately.

This substance is made of various degrees of thickness; that which is about as thick as a half-crown will be found to answer best. Another small circular piece, twice as stout as this, and about two inches in diameter, should be fixed to the centre of the first by a stitch of strong silk passed through the centre of both; this acts well as a pad immediately over the hernia. The cure of this malposition of parts is speedily effected by nature, and the ring becomes accurately closed, provided the hernia is well maintained. Any requisite degree of pressure can be attained by means of this belt, on approximating the tapes, three or four in number, on each side. On one side they should not be attached close to the end, in

order to allow of overlapping when the caoutchouc is put upon the stretch.

This instrument will be found both simple and efficient, and it costs but a few pence—a point of some consideration in the treatment of the poor. I have tried its use in several cases, and with uniform success. The cure usually occupied a period of from three to four months; but in one case, where, from neglect of the mother, the hernia had attained the size of the child's fist, the use of the belt was required for six months. The same belt, made of stouter material, will be found to answer for reducible umbilical hernia of adults, as the instrument is not displaced by exercise, and the patient can employ whatever amount of pressure he finds best for his particular employment.

Lancet, June 3, 1848, *p.* 606.

100.—*New Truss for Oblique Inguinal Hernia.*—By G. R. DARTNELL, Esq., Staff-surgeon, Fort Pitt.—[Mr. Dartnell thus describes what he terms the "solid pad truss:"]

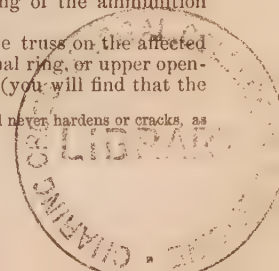
It consists of a short and pliant steel spring, which is terminated at either end by a pad. The anterior or rupture pad is of small size, formed of hard wood, polished, and of a rounded oval and somewhat conical shape. The back pad is flat, formed of strong leather, padded on the inner face, and furnished with two bridles on the outer one for connexion with the spring. The spring itself is cased with leather, and has a downward curve at its anterior extremity, which brings the wooden pad attached to it directly on the inguinal canal and internal ring. The instrument, when applied, is retained in its place by a light strap, continuous with the sheath of the spring, which, being passed round the opposite hip, loops on a button screw on the front pad.

The polished wooden pad requires no renewal, does not absorb the perspiration, or heat and excoriate the skin; it may, if preferred, be covered with a cap of chamois leather,* and as it imbeds itself in the soft parts above the pubic bone, and completely closes the walls of the inguinal canal, it causes no inconvenience to the wearer, effectually prevents protrusion of the bowels, and cannot in any way injure the spermatic cord.

The leather pad (which can readily be adjusted to the centre by sliding it either way on the spring) lies flat and close to the back, and obviates the necessity for a continuation of the steel spring round the opposite side of the body—a desideratum in all cases, more especially in that of the ruptured soldier, whose truss is so apt to be broken in the centre by the striking of the ammunition pouch.

Lay the patient on his back, and place the truss on the affected side; return the bowel, and feel for the internal ring, or upper opening through which the intestine protrudes; (you will find that the

* Flannel I now find preferable; it washes clean, and never hardens or cracks, as the leather does.

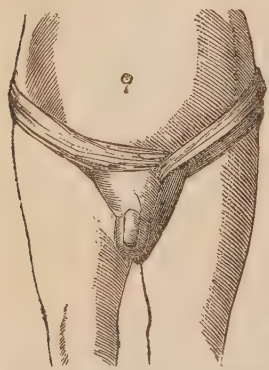


point of the finger pressed firmly on this spot will effectually prevent any protrusion;) on this point lay the wooden pad, taking care that it does not press on the pubic bone. Place the leather pad on the lower part of the hollow of the back, pass the strap round the opposite hip, and loop it on the button screw in front. No under strap is required.

Care must be taken to select an instrument that is of the proper size and shape, that fits everywhere closely and accurately, and that is not stronger in the spring than is absolutely required.

Lancet, Oct. 7, 1848, *p.* 403.

101.—*New Truss for Infants.*—By W. Coates, Esq.—[The difficulties which attend the application of a truss in young children are well known: and any contrivance by which these difficulties might be avoided, has long been a desideratum. Mr. Coates tells us,]



The subjoined sketch represents a truss employed by a gudewife in my neighbourhood; and its excellence is such that it is a duty to make it generally known. Horace tells us not to despise the teaching of the unlearned, for—

"Interdum vulgus rectum videt."—*Epist.*

I have given this truss extensive trials: the result has uniformly been the radical cure of the disease. It consists, simply, of a skein of lamb's wool: for infants, *Berlin wool* is preferable: this encircles the pelvis, one end is passed through the other at a point corresponding with the inguinal ring: the free end is carried between the thighs, and is fastened behind to that portion which forms the cincture.

This simple and cheap contrivance can be worn during the morning and evening ablutions, and then changed for a dry one; no attention is required on the part of the nurse, except at the moment of changing. With ordinary care in drying the skin, and the occasional application of magnesia or other nursery powders, I have never found the skin galled.

In cases of emergency this truss may be made available for adults; or rather, the modification of two silk handkerchiefs tied in a ring, which, as a *pis-aller*, is no more to be despised than is a garter and stick as a temporary tourniquet.

Medical Gazette, Sept. 29, 1848, *p.* 535.

102.—ON THE TREATMENT OF HEMORRHOIDAL TUMOURS.

By H Lee, Esq., Assistant Surgeon to King's College Hospital.

[After mentioning the varieties of hemorrhoidal tumors described by pathologists, Mr. Lee observes that in the majority of cases, whatever be the primary form of the disease, it is greatly affected by alterations which take place during its progress. He says:]

The first effect of an internal hemorrhoidal tumor is to raise the mucous membrane, to separate it from the muscular coat, and to cause it to protrude into and encroach upon the cavity of the rectum: the lower aperture of the bowel is thus narrowed, and increased efforts are required in order to evacuate its contents. The straining which accompanies these efforts forces the tumor and the mucous membrane which covers it below their usual situation, but as they soon recover their position, no further inconvenience is perhaps at the time experienced. At length, however, some slight attack of inflammation occurs in the part; the hemorrhoidal tumor is increased in size by the deposition of lymph and serum, and renewed efforts are made which force it farther down, and at length expel it from the extremity of the bowel.

The peculiar disposition of the muscles situated at the lower aperture of the rectum, now exercises a marked and very important influence upon the progress of the disease. The extremity of the bowel is surrounded not only by the muscular fibres which constitute its proper sphincter, but also by the posterior and superior portion of the *levator ani:* this portion of the muscle consists of a broad band of fibres, which embrace the sides and the back part of the rectum, and sling it forward towards the pubis. The last inch and a half or two inches of the bowel are thus surrounded by muscular fibres capable of exerting very considerable pressure upon any body placed within their grasp. When, therefore, any tumor in the bowel is forced below its natural level, and becomes encircled by the fibres above mentioned, it is placed in circumstances very similar to those of a knuckle of intestine in a hernial sac. The degree of compression may vary from that which is attended with only a slight, dull, heavy aching pain of short duration, to that which produces real strangulation, preceded by the most acute suffering.

In the great majority of cases, the circular fibres, above mentioned, exert a comparatively slight degree of compression, but still sufficient to produce an important effect upon a tumor placed within their grasp. A very slight degree of pressure is sufficient to retard the free return of blood from the part. This is necessarily followed by congestion and swelling of the tumor, and places it under those conditions which of all others render it most liable to repeated attacks of inflammation. The tumor, which was originally of a red colour, now assumes a dark purple appearance, and the mucous membrane in the neighbourhood being drawn upon

whenever the pile is forced below its natural level, at length assumes a permanent disposition to "bag," and portions of it are continually being forced through the lower aperture of the bowel. These changes are generally accompanied by an occasional dull, heavy aching pain, either in the perineum or in the rectum; but usually it is not till repeated attacks have been experienced, that the pain and inconvenience are sufficient to induce the patient to seek for surgical relief.

[Of the two cases which Mr. Lee relates, we give the following:]

S. S. W., Esq., about 70 years of age, had been troubled with the usual symptoms of piles for many years. In the summer of the year 1814 the inconvenience had greatly increased, and it became, to use his own words, "absolutely necessary that something should be done." His general health at the time was evidently upon the decline, and his legs were swollen and œdematous. On examination I found the margin of the anus surrounded by soft livid tumors, together with a considerable portion of prolapsed mucous membrane, which he was unable to return into the bowel. The projection altogether was the size of half a large orange. Considering the state of health of this patient, I was unwilling to perform the common operation, and I ultimately determined to destroy a portion of the relaxed mucous membrane upon each side of the bowel, with the strong nitric acid. This was easily accomplished, with the precautions hereafter mentioned; and I had the satisfaction to find that the operation was attended with scarcely any pain.

For some time after this operation the hæmorrhoids descended every time that the patient had a motion; and at first little good appeared to have resulted from the application. The small sores left after the separation of the sloughs, soon however began to heal; and as their edges were drawn together by the process of cicatrization, the parts descended less frequently, and in three weeks from the time of the operation I had the satisfaction to find that the whole of the parts were habitually retained within the sphincter. The distressing symptoms from which this gentleman had so long suffered were now entirely relieved; and although I saw him occasionally for many months afterwards, I never heard that he experienced any return of his former complaint.

It is important to remark that the benefit to be derived from such an operation must not be expected till the small ulcers made by the caustic begin to heal. The loose folds of mucous membrane are then drawn upon, and the whole of the mucous lining is rendered more tense. Each small cicatrix, moreover, serves as a permanent point of attachment for the relaxed membrane, and consequently the inner coat (which alone descends in such cases) is retained permanently in contact with the other coats of the bowel.

The degree of pain experienced in this operation depends in great measure upon the way in which the nitric acid is applied: the sensibility of the thin skin around the anus is very great, and if the acid is allowed to come in contact with it, the degree of tingling

pain experienced is very considerable; if care be taken, on the other hand, to confine the application of the acid to the comparatively insensible mucous membrane, a slight uneasy sensation in the lower part of the abdomen is generally all that is complained of.

In the application of nitric acid to hemorrhoidal tumors, the degree of irritation experienced will often depend upon the extent of surface involved in the operation. When, therefore, a considerable amount of the mucous membrane descends with the tumors, it is desirable to select certain portions of it, to which the application of the acid should be confined. The effect of the acid may be regulated either by applying very small quantities of it at a time, or by shielding the surrounding surface by a paste made of chalk and water.

Every portion of mucous membrane to which the acid extends should be as completely deprived of vitality as possible, since the degree of pain experienced will necessarily depend upon the remaining sensibility in the parts.

Unless these conditions are observed, the application of nitric acid, or of any other caustic, to the mucous membrane of the rectum, may prove as serious an operation as that for which it is intended as a substitute.

Wm. Perry, æt. 33, was admitted into St. George's Hospital on the 1st of September, 1847. He had suffered much from the usual symptoms of piles for twelve years; and his health had become seriously impaired by repeated and copious loss of blood from the rectum. When he strained at stool, a cluster of piles presented themselves, which, together with a considerable portion of mucous membrane, formed a mass the size of half an orange. A fortnight after his admission (the bowels having been previously opened by some mild laxative medicine) the strong nitric acid was applied to the tumors, and allowed to extend over nearly the whole of the protruded parts. He experienced considerable pain at the time of the operation; and a few hours afterwards had a slight rigor. The night following he was kept awake by pain in the rectum, which he also experienced occasionally during the next day. On the third day his symptoms were relieved; but he still found that the tumors descended every time that he went to the water-closet, and caused him considerable inconvenience till they were returned to their natural situation.

On the 2nd of October the application of nitric acid was repeated more carefully. On the 19th of the same month, his symptoms had entirely disappeared. There was now no descent of the bowel; he felt himself entirely free from pain; and the hemorrhage from the bowels had ceased. This patient was again seen on the 22nd of February, 1848. He then stated that, from the time of leaving the hospital, he had continued well and free from pain, but that a few days previously he had again experienced a slight discharge of blood from the bowel.

I can have no hesitation in attributing the pain and irritation experienced in this case, after the application of the nitric acid, to the conditions above mentioned not having been regarded. Having

witnessed this operation, now, in a considerable number of cases, I have never known similar inconveniences to arise when the acid has been confined to a small portion only of the mucous membrane, and applied so as completely to destroy its sensibility.

The following case will show what a comparatively trifling operation this may become under favourable circumstances:—

Captain H. was seen on the 6th of March, 1848. He had suffered from piles for several years, and had at different periods lost a large quantity of blood. Upon examination, finding two large internal hemorrhoids, I applied the strong nitric acid, so as to completely destroy the mucous membrane covering them, taking care that the acid extended to no other part. This gentleman experienced only a slight uncomfortable feeling in the lower part of his abdomen during the operation, and this almost immediately subsided. I requested that he would lie upon the sofa for the remainder of the afternoon, but calling upon him again in the course of a few hours, I was surprised to find that he had gone out for his accustomed walk. The operation in no way interfered with the pursuit of his usual occupations.

The nitric acid in such cases should be the *strongest that can be procured:* that which is usually kept by chemists under the name of the strong nitric acid does not effectually destroy the surface to which it is applied; and when used it therefore produces more pain than the strongest acid, and cannot be so certainly relied upon to accomplish the intended purpose.

The most convenient way, perhaps, of applying nitric acid to hemorrhoidal tumors, so as to insure the success of the operation, is to encircle the base of the tumors to be removed with any instrument which will at the same time hold them in their situation and make sufficient pressure to prevent the divided vessels from bleeding; any portions of the hemorrhoidal tumors, or of the mucous membrane, may then be removed with a pair of curved scissors, and the cut surfaces immediately wiped dry and touched with the acid. If this is done before any bleeding has taken place the blood in the vessels will be coagulated, and the vessels permanently sealed. Care must be taken, however, in performing this operation that the pressure completely commands the hemorrhage, for if any blood escapes from the surface it will become mixed with the acid, and prevent it from effectually acting upon the surface to which it is applied. The instrument which is best adapted for restraining the hemorrhage under these circumstances consists of two parallel curved plates of steel, with their internal edges slightly indented, so as to fit each other when they are brought together; these two plates are connected at each end by a small cross bar, to which a screw is adapted so as to produce the exact degree of pressure required. When the tumor to be removed projects sufficiently, a common india-rubber ring applied round its base will frequently answer every purpose.*

* If an india-rubber ring is used it should be cut off (not pulled off over the tumor) when the operation is concluded.

There is a considerable class of cases which generally pass under the common name of "piles," but which differ in their mode of origin from those which have been before considered. In the cases to which I now allude the inconvenience experienced does not, in the first instance, arise from the existence of hemorrhoidal tumors, nor from any inflammatory affection of the parts, but from portions of the relaxed mucous membrane becoming inverted and griped by the muscular fibres situated at the lower part of the rectum. The following case is mentioned by Mr. Abernethy:—

A medical man having dined out was seized with some disturbance in his bowels, which caused him to get up during the night. He returned to bed, but could not rest. He experienced great pain and irritation about the pelvis, and was unable to attend to his practice the next day. When Mr. Abernethy saw him he had no less than thirty or forty scarifications upon his nates, from cupping-glasses which had been applied in the hope of procuring some relief. Mr. Abernethy, suspecting that a small plait of bowel had descended, and was griped by the sphincter muscle of the bowel, examined the parts, and found a small protrusion: this he returned to its natural position, and immediately relieved the patient.

The insensibility of the mucous membrane in this complaint frequently causes the symptoms to be referred to the neighbouring parts, and therefore it is, I believe, that this disease often exists without being recognized. A patient will often complain of a dull pain over the sacrum, or a heaving aching pain in the perineum, which neither he nor his surgeon can satisfactorily account for. In the course of time some other symptom presents itself, which draws attention to the rectum, and the usual remedies for piles are administered: laxatives, mercury in different forms, and sometimes local depletion, are had recourse to, without, of course, any ultimate benefit as long as the disease depends upon a mechanical cause.

Permanent relief in such cases can only be sought by means of such remedies as tend to brace the mucous membrane of the bowel. The simplest as well as the most efficacious method of accomplishing this is to remove one or two small longitudinal folds of the mucous membrane;—when any portion of the lining of the bowel can be forced down this may be easily accomplished, in the same way as recommended for the removal of hemorrhoidal tumors. It is not necessary to remove the precise portion of membrane which has become inverted; the destruction of any portion will, after the wound is healed, have the effect of bracing the remainder. In this, as in the operation for hemorrhoidal tumors, it is the process of cicatrization which cures the disease.

When an operation cannot be had recourse to, other means may be tried in order to give tone to the bowel: among the first of these may be mentioned frequent ablution with cold water. Different kinds of ointment may also be used for the same purpose. The following I have known attended with considerable benefit:—

℞. Pulv. hydr. nitr. oxyd. ʒiij.; pulv. capsici, gr. v.; ung. cetacei, ℥j. M.

But in cases where the mucous membrane of the rectum has acquired an habitual disposition to "bag," it frequently happens that no local application will afford permanent relief. The loose folds of membrane (which may or may not be connected with hemorrhoidal tumors) will descend again and again, and sometimes keep up irritation in the part for several years. An effectual remedy may sometimes be found under such circumstances by affording local support to the relaxed membrane. The disease being of a mechanical nature may be relieved by mechanical means. A variety of instruments have at different times been invented in order to accomplish this object. Those of the simplest construction have consisted of a stem three-quarters of an inch in length, with a cross bar at one extremity to prevent the instrument from passing into the rectum, and a bulb at the opposite end to retain it in its position when introduced. In the advanced periods of the disease, where the muscular rings at the lower part of the bowel have become inverted from above downwards, and some of them protruded together with the relaxed membrane, the instruments above mentioned have occasionally been of essential service. But in the earlier stages of this complaint they have frequently been attended with more irritation than the disease which they were intended to alleviate.

Medical Gazette, Aug. 11 *and Sept.* 1, 1848, *pp.* 241 *and* 361.

103.—*On Hæmorrhoids.*—By Bransby Cooper, Esq.—These painful tumors must be looked upon as resulting from a varicose condition of the veins of the rectum; a state generally produced by some obstruction in the portal system.

The superior hemorrhoidal vein returns its blood to the vena portæ, which, if it become obstructed from disease of the liver, would necessarily tend to congestion of the veins of the rectum; and this anatomical fact teaches us, that in piles, the remedies may often be advantageously directed to the relief of the loaded liver. High living, want of exercise, or constipated bowels, frequently, therefore, induce congestion of the veins of the rectum, and their consequent varicose condition. If this congestion become permanent, the blood within the veins coagulates, and, acting as extraneous matter, excites inflammation in the surrounding submucous cellular tissue: adhesive matter is then thrown out, and unites the congeries of varicose veins into a solid mass, which constitutes a pile. It sometimes happens that some of the veins included in the adherent mass still contain fluid blood, and therefore slight hemorrhage occasionally occurs. From these bleedings, the patient frequently derives so much relief as to be led to believe that the attack of piles has subsided; such relief is, however, generally but of short duration, as the vessels soon fill again, and produce a return of all the symptoms.

Hemorrhoids, moreover, necessarily produce great obstruction to the passage of the egesta, and the piles are often forced down by the efforts of the patient during evacuation, so that they protrude through the anus, often attended by considerable prolapsus; generally, however, upon the completion of the act of defæcation, both the hemorrhoids and the prolapsed bowel spontaneously return into the anus. Sometimes the piles become so much elongated by frequent protrusion as to be rendered permanently external; when from exposure to constant friction and other sources of irritation, their mucous membrane soon becomes converted into true skin. It would be supposed that in this condition the hemorrhoids would produce much less irritation, but such is not the case; for as they still remain connected with the interior of the rectum, they continue to excite considerable disturbance, and sometimes, becoming themselves inflamed, require leeches, and strict dietetic observance, for their relief, it being also necessary that the patient should be kept in the recumbent position. External piles do not, however, always appear as the mere result of the protrusion of internal piles, but are sometimes entirely independent of them, and arise from inflammation and thickening of the subcutaneous cellular tissue around the anus; these piles are apparently unconnected with a dilated condition of the veins, although originally the congestion of the latter may have produced the inflammation.

External piles even when unattended by internal, frequently produce prolapsus ani, extreme pain in the course of the sciatic nerve, pain in the perineum, and in some instances even difficulty in passing the urine; nor are these phenomena inexplicable to the anatomist and pathologist, when it is remembered that these parts are supplied by filaments of nerves derived from the same source. The excision of piles forms, however, an almost infallible means of removing all these symptoms. A short time since, I was consulted by a patient in the Edgeware Road, who was the subject of both internal and external piles: his medical attendant had tied several of the internal ones without affording any permanent relief; but when I removed the external hemorrhoids the patient was rapidly cured. In another case, I was called to a lady, a governess in the family of a nobleman: part of her duties consisted in walking out with her pupils, but this exertion caused her so much pain that she was obliged to confide her condition to the elder of the ladies, and whenever they went out to walk she was in the habit of going to lie down at the house of a friend close by: this could not go on long, and she was obliged to seek medical aid. She told me a pitiable tale of her suffering: the piles were external, and were attended by frequent bleedings, but after I excised them, she very rapidly recovered. I remember also the case of a gentleman, who was very fond of hunting, but who was afflicted by piles to such a degree that his saddle was often covered with blood; at length the disease became so bad that he was obliged to give up his favourite amusement. I then saw him, and after having excised the piles, treated him with enemata and laxatives; principally, however, insisting

upon the necessity for always passing his motions at night. He very soon recovered, and it is now eight years since he had any symptom of a return of his complaint.

Whether the piles be internal or external, they necessarily cause great inconvenience in the act of defæcation, and the fæces are generally passed in small portions, and are often attended by a flow of blood; these symptoms are not, however, referrible to piles alone, as they may equally proceed from stricture of the rectum. It may, however, easily be ascertained by an examination per anum, whether the symptoms are produced by piles or stricture. The first treatment of piles should always bear reference to the state of the patient's general health; for, as they usually depend upon some disturbance to the function of the liver and bowels, or both, until the healthy action of those organs be re-established there can be but little hope of removing the local disease. Small doses of mercury to act on the liver, and mild purgatives to excite a healthy action of the bowels, constitute the means to be employed; but the purgatives should be of the least drastic nature, and not likely to act especially upon the lower bowels. The nostrum termed "Ward's Paste," or the confec. piper. nigr. of the London Pharmacopœia will be found useful; but if they should produce nausea as they frequently do, I have found the following prescriptions of very great benefit in restoring the natural action of the bowels:—℞. Aloes decoc. co. ʒiss.; sarsæ ext. ʒss.; sarsæ decoc. co. ℥iss. M.—Ft. haustus ter quotidie sumendus; giving also an alterative pill two hours before dinner to induce evacuation of the bowels at bed-time. If the irritation still remains so as to create an uncontrollable action of the bowels, considerable benefit will be derived from the use of the following pill:—℞. Morph. acet. gr. 1-6th; hyos. ext., gr. iss.; camphoræ, gr. ij.; colocynth ext. co., gr. ij. M.—Ft. pil. bis terve quotidie sumenda.

[When surgical treatment is required, its nature will vary, of course, according to the kind of pile.]

Internal piles, Mr. Cooper observes, which are only covered by mucous membrane, should always be removed by ligature, in consequence of their great tendency to bleed; and, indeed, I have known more than one instance of death from excision in such cases. There is, however, sometimes a degree of difficulty in exposing the pile sufficiently to enable you to apply the ligature; but this may generally be effected by causing the patient to sit over a hand-basin filled with hot water, and placed upon the floor, so that he is obliged to stoop or crouch over it. By some straining the pile will now generally protrude, and the ligature can be passed around it; the mucous membrane and submucous cellular tissue must alone be included, and then the operation is attended with but little pain. If the base or root of the pile be very broad, the ligature may be applied by another method. A needle, armed with a double silk, should be passed through the centre of the tumor, and the threads being separated are tied on opposite sides, each including one half of the pile. The latter should then be laid open by the knife, which

affords great relief to the constriction, and is wholly without danger, as the ligatures preclude hemorrhage. After the operation, the patient should be kept in the recumbent posture, upon low diet, and a dose of opium be administered, to keep up a constipated state of the bowels, until the ligature has sloughed away. An external pile is better removed at once by excision; and in performing this operation, the pile should be taken of by one sweep of the knife; if there be more than one pile to be excised, it is best to remove them all at the same "sitting," as in that case the patient suffers less constitutional irritation than when each pile is made the subject of a separate operation. In thus removing piles, there is, however, one point that ought not to be lost sight of; the process of cicatrization will necessarily contract the verge of the anus; and, unless some mechanical means be employed to obviate this, there would arise permanent difficulty in expelling the fæces. Bougies should therefore be daily passed during the progress of the healing process, to prevent such contractions.

Should you have to perform this operation, you must not be disappointed if, for the first three or four days, the patient seems to have received but little relief; and, indeed, a fresh growth of piles sometimes appears to be formed; these generally prove, however, to be nothing more than folds of mucous membrane, which pass down probably in consequence of some of the fibres of the sphincter ani muscles having been divided. Such protrusions generally subside by the application of cold poultices; and the reunion of the sphincter muscle prevents their return.

Medical Gazette, Oct. 27, 1848, *p.* 692.

104.—ON PROLAPSUS ANI.

By Bransby Cooper, Esq, F.R.S., &c.

[In mild cases, the improvement of the general health by tonics, and attention to diet and regimen, together with the use of mild aperients, and astringent injections into the rectum, will afford relief. But, Mr. Cooper observes,]

In very protracted cases of prolapsus, palliative means may not prove sufficient, and mechanical contrivances may be requisite to return the protruded membrane within the anus; bougies or the finger may be employed for this purpose; but in some instances the tone of the sphincter may be so completely destroyed that it would be incapable of retaining the intestine even after it is returned; a pessary should in that case be passed into the rectum, and allowed to remain there for a few hours, so as to maintain the loose portion of membrane sufficiently long in situ to allow of its recovery from the congestion arising from its protrusion and exposure to external agency. I have seen an instrument which is worn by the Chinese, who are very liable to prolapsus ani, for the purpose of retaining

the bowel within the anus. It consisted of a ball of silver, perforated with holes, to permit of the escape of flatus, and made to unscrew in the middle, so that it could be easily cleaned; this instrument appeared to me to be admirably suited to the purpose for which it was intended. When a pessary is employed, it should be passed into the bowel above the sphincter muscle, otherwise it would prove a source of increased irritation rather than of relief. And at the same time that mechanical contrivances are made use of, constitutional means should also be adopted for the purpose of improving the tone of the health. In spite, however, of all these means, the prolapsus may remain unrelieved, in which case a surgical operation must be undertaken, in the hope of effecting "a radical cure." This object may sometimes be attained by pinching up with a pair of forceps a small portion of the mucous membrane of the bowel, and securing it with a ligature, taking care not to include anything besides the mucous membrane. In this manner two or three portions may be taken up just above the sphincter at about equal distances from each other, and each being tied, the resulting cicatrization will produce a very uniform contraction, so as to prevent the future protrusion. I have also in two or three obstinate cases divided the anal extremity of the sphincter muscle, for the purpose of permanently diminishing the size of the opening of the anus; the after treatment consists in keeping the patient in the recumbent posture, and maintaining for a few days a constipated state of the bowels, to enable the parts to recover from the effect of the operation.

Medical Gazette, Oct. 27, 1848, *p.* 691.

105.—*Treatment of Fissure of the Anus.*—By M. Maisonneuve.—The author, believing this affection to depend on spasm of the sphincter ani, has adopted the following operation (first proposed by M. Recamier), in order to destroy the spasm by forcible distension. Introducing two fingers into the rectum, the anus is stretched by drawing the fingers in opposite directions, and the operator is thus enabled to introduce his whole hand into the rectum, he then closes his hand, and draws his fist through the anus. Among a great number of cases the author has not witnessed any bad effects, or a single relapse.

For the complete destruction of the tendency to spasm, the hand must be retained in the rectum for a considerable time; in such cases permanent relaxation of the sphincter is a bad effect to be apprehended from the operation.—*Monthly Journal.*

Dublin Medical Press, July 19, 1848, *p.* 35.

106.—*On Stricture of the Rectum.*—By Bransby Cooper, Esq., F.R.S., &c.—[The rectum is sometimes, Mr. Cooper observes, the seat of spasmodic stricture, resembling the stricture of the œsophagus which occurs in hysterical females. But permanent stricture is a frequent occurrence, and one of the prominent symptoms of this state is constipation, partly due to the obstruction, and partly occasioned by the avoidance of defæcation by the patient, who dreads the acute pain which it occasions.]

The egesta, Mr. Cooper observes, in stricture of the rectum are passed in small rounded portions, or if "figured," of very small diameter, from being forced through the contracted part; the patient usually complains of distension of the abdomen, interference with the function of respiration, and loss of appetite. With these symptoms an examination should be made per anum, at first with the finger alone, and this will probably lead to the detection of the obstruction, which is often very firm, and resists the entrance of the finger into the bowel. This excessive hardness may be produced either by scirrhus, or by a mere attack of inflammation, and therefore, the hardness alone is not to determine the judgment of the surgeon as to the disease being malignant, as that question will be best decided by the age of the patient, the length of time the disease has existed, and by the nature of the pain. If, for instance, the patient be old, the pain constant, severe, and of a lancinating character, and he has great dread of exciting the muscular action necessary to the evacuation of the bowels, and if at the same time there is an appearance of what is termed malignant diathesis, the prognosis would be unfavourable. But, if the obstruction results from simple inflammation in a youthful patient, it will be indicated by the suddenness of its appearance, by the febrile symptoms attendant upon it, and by the peculiar sensation conveyed to the finger; for although there is considerable hardness, it is not of the stony character that marks scirrhus, but gives the idea of its being a dense projection of the natural structures into the bowel, rather than an adventitious deposit. When the disease is malignant, bleeding is frequent, particularly upon examination either by the finger or instrument, and the pain lasts for a considerable time after, which is not the case with common stricture. The treatment in the non-malignant disease consists in the occasional application of leeches around the anus, the patient being kept in the recumbent posture, and I believe that enemata will be generally found better than bougies, as a mechanical means of overcoming the obstruction, unless they act, indeed, too much upon the bowels, in which case bougies must of course be employed.

The introduction of a bougie is a matter requiring considerable skill and anatomical knowledge; and in this particular case also, a competent acquaintance with the change of the relative situation of the rectum consequent upon the position in which the patient is placed. From want of this knowledge, indeed, unskilful practitioners often do great mischief, sometimes wounding the rectum, from which accident extravasation of fæces, peritonitis, and death, may be produced. The bougie should, therefore, only be employed by scientific surgeons. Leeches, the recumbent posture, injections, and in some cases the use of the bougie, and cupping in the loins when the pain is severe, are the means to be had recourse to in non-malignant obstruction. And often, by such measures, a disease which at first appeared to be of an alarming character, is quickly removed. In malignant disease but little can be done: the adventitious matter indefinitely increases, so as at

length completely to obliterate the bowel, and the patient dies from the insuperable barrier opposed to the escape of the excretions, unless an artificial anus be made in the colon, or as some surgeons have recommended, a cutting gorget, or some instrument of the kind be forced through the obstruction; but this if it afford any relief, can only do so temporarily. Scirrhous stricture generally destroys the patient, however, by the propagation of the malignant disease through the medium of the absorbents to some distant part: thus, perhaps, transplanting it to important vital organs, in which case the reaction on the constitutional powers is very rapid, and the patient soon sinks beneath its influence.

Medical Gazette, Nov. 10, 1848, *p.* 782.

107.—*On the Operation for Fistula in Ano.*—By Bransby Cooper, Esq., F.R.S., &c.—The effectiveness of this operation depends entirely upon the complete division of the sphincter ani muscle, for by its contractions it offers resistance to the free passage of the contents of the bowel, which thus have a tendency to pass through the abnormal opening, and keep up its fistulous character. If a probe be introduced into the opening through the skin, it can generally be pushed two or three inches upwards by the side of the rectum, and if, at the same time, the finger be placed in the bowel, the point of the probe can be readily felt through the parietes. I believe, however, that no communication is ever formed between the bowel and the fistula so far above the sphincter; no advantage is therefore derived from this extensive exploration, and it is, in my opinion, very bad practice to make an incision in the bowel so high up, for if a very extensive wound is unnecessarily made, large vessels are exposed to danger, and nature is called upon to repair a much greater lesion than is really requisite. The operation should consist in merely introducing the probe into the external opening, and in seeking, by gentle manipulation, for the ulceration into the bowel itself: this will usually be found immediately above the upper edge of the sphincter muscle, but if there should be any difficulty in discovering it, the probe-pointed bistoury may be gently forced through the parietes of the rectum, and the point of the knife being in contact with the finger, which has been already passed up the anus, the division of the sphincter may be effected by drawing both hands simultaneously downwards from the body of the patient, still keeping the finger and point of the instrument in firm contact. This operation removes the obstruction the sphincter muscle offered to the free passage of the fæces, which were consequently forced into the fistulous openings, but as the latter are destroyed by the operation the sinuses readily heal, and in a short time the disease is completely removed. To secure the granulation of the wound, and prevent the mere adhesion of its cutaneous surface, the whole of the divided part should be filled with lint, and the bowels kept in a state of constipation for some days, so that there may be no interference with the reparative action. When aperients are administered, the patient should be made aware that he will have no

power to restrain the evacuation of the fæces: this must, of course, be the result of the division of the sphincter ani. In cases of neglected fistula in ano, the sinuses sometimes open at a considerable distance from the verge of the anus; so that, if the operation be performed precisely according to the above description, a very extensive incision would have to be made through the gluteal region, to comprehend the whole length of the sinus. To avoid this, the operation may be modified as follows:—A probe is to be passed along the fistula into the bowel, and then bent by the finger in the rectum so as to bring the point out at the anus; the two ends should be drawn downwards to bring the sinus towards the surface; the probe is then to be cut down upon, just as it is entering the intestine above the sphincter, and, the probe-pointed bistoury being directed along the probe into the bowel, the probe may be withdrawn, and the bistoury made to divide the sphincter as already described. By this manner of proceeding two-thirds of the length of the fistula may remain undivided, and will readily heal, as there is no longer any cause for the fæces to pass into it. There is still another modification of the operation, which it may sometimes be advisable to adopt in certain cases of fistula, and I have myself had recourse to it. If on passing the finger into the bowel, for instance, for the purpose of examining the situation of the ulcerated opening, you discover that the hemorrhoidal vessels are abnormally enlarged, as indicated by the strength of their pulsation, you may employ a ligature, instead of a knife, for the purpose of dividing the sinus and sphincter ani. The mode of performing this operation is by passing an eyed probe (furnished with a strong silk) through the sinus into the bowel, bringing one end of the silk out of the anus, and leaving the other hanging from the orifice through which the probe had entered. The probe should then be withdrawn, and the two ends of the silk tied tightly so as to compress all the intervening structures: the ligature requires to be tightened daily, for the constriction becomes lessened as the ulceration advances. In the cases in which I have performed this operation, I was surprised to find that the patients complained of even less suffering than in the usual plan of proceeding; that the wound healed as readily, and did not require to be filled with lint, as, of course, there could be no tendency to unite by adhesion. I may also tell you, that the hemorrhage which sometimes follows the division of a fistula by incision is not only most alarming, but occasionally proves fatal: and therefore, in cases where there are indications that a larger quantity of blood than usual is sent to the part, it is highly important to avoid incising these vessels; and this may be done by substituting the ligature for the operation by the knife.

Medical Gazette, Nov. 10, 1848, *p.* 780.

108.—*On Recto-Vaginal Fistula.*—By Bransby Cooper, Esq., F.R.S., &c.—[Speaking of cases of fistulous opening between the rectum and vagina, Mr. Cooper says:]

I am acquainted with a case in which a lady was the subject of

this lesion; and, after every attempt had been made to sew up the fistulous openings of the rectum and vagina, and other plastic operations had been ineffectually resorted to, Mr. Copland restored the patient to health by the mere division of the sphincter ani, which not only prevented retention of the fæces within the rectum, but, at the same time, precluded the necessity for the action of the levator ani muscle. The contents of the rectum, no longer meeting, therefore, with any obstruction to their passage from the anus, had no tendency to pass into the vagina, the fissure in which immediately healed. A lady was lately under my care, who was the subject of a fistulous opening from the rectum into the vulva, through which the fæces in part escaped. On examining the case, I passed a probe from the vulva into the rectum, and found both openings were so near to the outlets of the rectum and vagina, that, by passing a bistoury and dividing the perineum, I should completely lay open the whole length of the fistula and the sphincter ani at the same time; and this operation I was at the moment much disposed to perform, as it seemed at once to afford the readiest and simplest mode of insuring a speedy cure; still, I had some misgiving as to the certainty of effecting the ultimate filling up of the wound; and I consulted Mr. Copland on the subject: he recommended me by no means to adopt this plan, as he had known it upon three or four occasions to be had recourse to, and in none of them did the patients ever recover the power of retention of the fæces; so that they were in a much worse condition from the operation than from the original disease. The mode I ultimately adopted, therefore, was, to divide the fibres of the sphincter ani muscle, and pass a probe covered with potassa fusa through the sinus, so as perfectly to destroy the mucous surface of the fistula. As the granulations thus produced did not seem to fill up the opening, I brought the surfaces of the fistula in contact by means of a ligature, which came away in a few days, and the opening into the vulva was much diminished, but still the communication between the two organs was not obliterated. I then daily applied the tincture of lytta to the granulating surfaces, and the lady left London, although it could not be said perfectly cured, with the prospect of the granulations becoming ultimately converted into permanent tissue

These cases, as well as those of lesions between the bladder and vagina, are most difficult to cure; and I believe that, unless the division of the sphincter ani itself promotes their obliteration, although other means may be somewhat accessory, they are never sufficient to produce a cure. My colleague, Dr. Lever, has had several cases of recto-vaginal and vesico-vaginal fistulæ, which he has attempted to obliterate by plastic operations, and by sutures, caustic, and actual cautery: the result of his experience, is, however, that very few persons are ever permanently cured, although, by means of actual cautery, he has frequently reduced the abnormal openings to the size of a pin's head, but I believe that only in one or two cases has he succeeded in producing a permanent cure.

Medical Gazette, Nov. 10, 1848, *p.* 781.

URINARY ORGANS.

109.—CASE OF STONE IN THE BLADDER.

By W. Fergusson, Esq., (Reported by H. Smith, Esq.)

[The patient was a man of twenty-five years old, who had suffered from symptoms of stone for three years. Upon sounding, it was with considerable difficulty that a stone could be felt. As, however, it appeared to be small, and as the introduction of instruments into the bladder caused little pain or inconvenience, lithotrity was determined upon. Mr. Fergusson accordingly introduced the lithotrite, but being unable to seize the stone with it, he at once proceeded to perform lithotomy. Mr. Fergusson's own remarks will explain the subsequent occurrences. He says:]

Nothing remarkable had occurred in the early steps of the operation, but at a later stage he had felt himself in a most unpleasant dilemma, having completely lost all trace of the stone; and notwithstanding his previous confidence that he had a case of stone to deal with, he was at one time fearful that this might prove one of those occasional instances where the surgeon, having cut into the bladder, had not succeeded in extracting the stone. The happy thought of passing an instrument by the urethra occurred to him, on doing which he immediately felt the calculus, where he had several times touched it before,—about the neck of the bladder,—and then, instead of passing his finger through the wound into the bladder, as he had hitherto done, he turned the point of it towards the bulb of the urethra, when he immediately detected the calculus, impacted in the membranous part of the urethra, exactly in front of the commencement of the incision into that part of the passage. From this point the stone had been extracted by means of the scoop with the utmost facility, and thus the operation was concluded.

The stone was one of the smallest which he had ever removed by lithotomy; indeed, it might be a question with some, why such a stone should not have been left to pass away with the urine? But the answer to that was readily given; for as the patient had suffered for three years from its presence in the bladder, it was not very likely that it could have come away spontaneously.

Had he been aware of the exact position of the stone, he might possibly have removed it without cutting into the bladder at all. The wound which he had made into this part had, however, been of the smallest size for lithotomy, and he could scarcely fancy any additional hazard arising from it. He had, from previous examinations, been under the impression that the stone often lay in the neck of the bladder, yet he had not been prepared to seek for it actually in the urethra. He could only account for its being in that situation by supposing that in withdrawing the lithotrite,

which was a flat-beaked one, with a short and acute curve, he must have caught the stone in the concavity of the instrument, and dragged it a certain way into the membranous portion of the tube. The small size of the concretion, and the considerable depth of the perinæum, had both tended to increase the difficulties of the case. Indeed, in all cases where the stone was small, he felt an uncertainty as to the progress of the operation. As regarded the mere performance of the operation, he had far less apprehension with a large than with a small stone before him, although the result of the operation might be expected to be less favourable.

Lancet, May 6, 1848, *p.* 493.

110.—*Case of Incarcerated Calculus.*—By M. Roux.—[The patient, aged 25, having suffered from symptoms of stone, M. Roux sounded the bladder, and]

The result was the detection of a hard resisting body, fixed in one spot, giving a sound on being struck, perceptible both by the surgeon and the persons around. The stone seemed to be situated towards the anterior part of the organ, a little to the right of the median line. From several circumstances it seemed to M. Roux that he had to do with an incarcerated calculus, although the situation of the body was not quite favorable to this opinion; for it is well known that concretions of this nature generally gravitate towards the inferior fundus of the bladder, and it is rather difficult to conceive how it could get incarcerated in the anterior wall. Bands, septa, or a tumor, could, on the other hand, not yield the clear sound which had been produced by percussion. The lateral operation was resolved upon, and it should be noticed, that before the incision was made, the existence of the stone was again verified by percussion. The bladder being opened, search was made with a great number of different instruments, and also by the finger, but no calculus could be found. The staff introduced by the wound, on being struck against the anterior wall, again produced the sound so often heard before, and the surgeon was of course thereby induced to hope that his efforts would at last be successful. He therefore continued the search for almost half an hour, but on finding that all was in vain, he desisted, and the patient was put to bed. Since the operation (about five weeks ago,) no complication has interfered with the gradual cicatrization of the wound, which has since progressed very favorably. Although the cysts of incarcerated calculi generally form in the lower part of the bladder, stones have been known (Boyer) to get surrounded by a fold of mucous membrane under the symphysis pubis; and a case is mentioned by Lapeyronie, where the aperture of the cell containing the stone was quite hidden by a sort of membranous curtain entirely covering it. Meckel found at a post mortem examination, all the coats of the upper part of the bladder grasping an enormous calculus, which was, in some degree, suspended. Ledran and Deschamps have recorded similar cases. B. Bell and Louis Leblanc mention patients in whom the bladder, con-

tracting upon a stone, has entirely surrounded it, and thereby turned the organ into a bag composed of two cavities. Verdier also relates that Bordenave wishing to practise lithotomy upon the subject, introduced a stone into the bladder, as usual, by an incision above the pubis. This same calculus could, however, not be found when the organ was entered by the perinæal wound, and the bladder being then examined, it was found divided into two cavities communicating with each other by a very small aperture. But as M. Begin remarks, in the "Dictionnaire de Medecine," the calculus may also, in following the oblique direction of the ureter, glide between the mucous and muscular membranes, and there go on increasing in size. Thus Ledran felt distinctly a stone impacted in the aperture of the ureter, and could not extract it at the time, though he succeeded a couple of months afterwards, when the incarcerating membrane had partially given way by inflammation. It will become pretty apparent, by the foregoing considerations, that there have been numerous cases where the diagnosis has been as doubtful, and the result as unforeseen, as in M. Roux's patient. This eminent surgeon is inclined to think that the calculus is lodged in the ureter; and as no untoward symptom has occurred, and the patient, continuing to suffer the same pain as before, is anxious to have something done, M. Roux has made up his mind to penetrate into the bladder above the pubis.

Lancet, May 20, 1848, *p.* 544.

111.—*Case of Encysted Calculus.*—By —— Peck, Esq.—[In this case, the presence of a stone was detected in 1840; but after drinking the Vichy water the symptoms almost disappeared, until a fortnight before the patient's death, in February, 1848, when he was attacked by pneumonia, and died from exhaustion. The disappearance of the symptoms was due, Mr. Peck supposes, to the stone having become encysted soon after he took the Vichy water. After death, Mr. Peck tells us,]

The bladder was removed and opened; in it were found two calculi, *loose*, oval in form, and flattened, one weighing five drachms eight grains, the other four drachms forty-four grains; they were about the size of small pigeon's eggs, rough, but with the more prominent asperities slightly rubbed down, each with a small spot where they had apparently lain, the one upon the other; at the apex of one was a small conical projection, apparently a fresh deposit. The coats of the bladder were thickened, and covered with a muco-purulent matter; the vessels congested. The third lobe of the prostate gland was slightly enlarged. On the right side of the fundus of the bladder was found a pouch, formed by a protrusion of the mucous coat of the bladder through the muscular fasciculi, capable of containing about an ounce of fluid; it was empty, with the exception of some muco-purulent matter.

Provincial Medical and Surgical Journal, July 12, 1848, *p.* 386.

112.—*New Operation of Lithotomy.*—By Dr. Maisonneuve.—A joiner, aged 28 years, intending to remedy an obstruction of the urethra, introduced into the duct about two years since a piece of wire, to the extremity of which was attached a fragment of cork, one inch in length and four lines in diameter. The cork accidentally loosened from the wire, and, falling into the bladder, became the nucleus of a concretion. M. Maisonneuve admitted the patient into the hospital on the 20th of August, 1847, and on account of the presence of the cork, resolved upon performing lithotomy in preference to lithotrity. The patient having been placed in the usual position, and the grooved staff being introduced into the bladder, the surgeon passed the index of the left hand into the rectum, and in front of the anterior angle of the prostate recognised the groove; through the membranous portion of the urethra, and above the sphincter, a knife enveloped in linen up to within four lines of its point was conducted along the finger and readily punctured the urethra, penetrating into the groove of the staff. Into this aperture the lithotome was introduced and passed into the bladder, where the blades were opened to the extent of fourteen lines. The index and medius fingers of the left hand were then used for the purpose of dilating the intestine and for the protection of the sphincter ani. The lithotome was withdrawn, and the forceps, after some research, removed the calculus. On the second day after operation, slight febrile excitement was noticed, but on the third the urine was voided from the urethra. On the fourth day the patient was up for six hours; nine days after lithotomy he took a very long walk without any inconvenience, and seventeen days after it had been performed he returned home. He has since continued in perfect health.

Many years ago, M. Sanson proposed extraction of vesical calculi through an incision of the rectum. He proposed two methods, both of which differ considerably from the present. One consisted in dividing the rectum above the prostate, and was very soon abandoned; the other closely resembling the plan brought forward by Vacca Berlinghieri, comprised in the incision the sphincter ani and the perineum as far as the bulb. In M. Maisonneuve's process the sphincters remain untouched, and a preliminary incision of the soft parts is not necessary for the purpose of detecting clearly the precise position of the groove of the staff. The involuntary contractions of the sphincter do not constitute an objection to the operation, as they can easily be prevented by anæsthetic inhalation. At the same time morbid enlargement of the prostate, or considerable hemorrhoids, might form an insurmountable obstacle to the performance of the new operative process. The remarkably rapid recovery of the patient after the operation is attributed by M. Maisonneuve to its nature, the incision being protected from the contact of air, and being in some measure placed in analogous conditions with subcutaneous sections, the consequences of which are comparatively unimportant.—*Union Medicale.*

Medical Times, June 3, 1848, *p.* 73.

113.—*Case of Retention of Urine.*—By W. M. Fairbrother, Esq.—A remarkable case of retention of urine came under my notice last week. The patient, a female about 30 years old, who had been under the care of a practitioner in her neighbourhood for one week, when seen by me was suffering from irritative fever, while an immense tumor, extending from the pubes to the navel, occupied nearly two-thirds of the abdomen, and presented, on percussion, the ordinary sign of fluid in a cavity. The female catheter had been introduced, by the gentleman in attendance, two days previously, some urine was drawn off, when it suddenly stopped. It was again introduced during my visit, and no urine flowing, I considered that the distended bladder had drawn up the neck of that viscus from its natural situation, and elongated the meatus. I then had recourse to an ordinary gum-elastic male catheter, without the stilette, and nearly seven imperial pints of urine were drawn off.

I mention this case, to remark what extraordinary powers of endurance were manifested here, that a rupture of the bladder should not have taken place.

Lancet, Aug. 12, 1848, *p.* 175.

114.—*Improvement in Catheterism.*—By W. N Spong, Esq., Aylesford.—[Mr. Spong proposes the following simple contrivance in those cases where from the rupture of a vessel in a case of enlarged prostate or of stricture near the neck of the bladder, the eye of the catheter becomes plugged with coagulated blood, and the urine is prevented from passing.]

The coagulated blood may be either dislodged or prevented from entering the eyes of the instrument. While the instrument is in the bladder, it may be dislodged by applying a common syringe to its orifice, and firmly pinching the point of junction of the two instruments between the finger and thumb. If the piston is now briskly drawn up, the clot of blood is sucked into the cylinder of the catheter, and the urine flows freely. A good syringe, capable of holding a fluid ounce, is sufficiently powerful. This manœuvre is applicable to either a silver or a gum-elastic catheter. The clot might be dislodged by injecting; but that process is out of the question, for the bladder is too full already.

The blood or mucus, or whatever it may be, is more certainly dislodged if the catheter be filled with warm water previously to its introduction, and thus passed into the bladder, with the thumb over the orifice, to prevent escape; but this is only applicable to a metallic instrument.

Another object is, to prevent the coagulum entering the apertures, which coagulum is smeared into them during its passage. A piece of silk or thread is required for this, which must be lightly forced down to the beak of the instrument by means of the stilette, a small piece at a time, taking care not to break the thread until the eyes are plugged, the finger being held over them during the process. A few inches must be left hanging out beyond the handle

of the instrument, taking care that the plug of thread or silk is level with the apertures. The instrument is now ready for introduction, which being accomplished, the thread is withdrawn, and the urine follows.

This simple contrivance succeeds best with the silver catheter, because it can be introduced without the stilette; but it can be also employed with the gum-elastic instrument, as follows:—Tie the piece of thread firmly to the end of the stilette, and pass it completely down to the beak of the catheter; then draw out a few inches of silk through the eye, and plug the aperture from without. The stilette remaining stationary, cut off any superfluity, and in using it draw out the silk first, or the stilette and silk together, as may be most convenient. Gum catheters having only one aperture or eye, this proceeding is easily accomplished.

Lancet, June 3, 1848, *p.* 606.

115.—*Treatment of Urinary Discharge from the Umbilicus, in Infants.*—By Bransby Cooper, Esq., F.R.S.—In infancy it is not uncommon for a urinary discharge to take place from the umbilicus, in consequence of the open state of the urachus: in such a case you should first ascertain that there is no obstruction to the passage of the urine through its natural canal, and if that should be the case, as frequently happens from congenital phymosis, the cause of the obstruction should be removed, and then, upon gentle pressure being applied to the umbilicus, the urachus generally closes, although there have been instances in which the defect was never remedied.

Medical Gazette, Sept. 1, 1848, *p.* 354.

116.—CASES OF HYDROCELE TREATED BY IODINE INJECTION, IN THE PRACTICE OF DR. BELLINGHAM.

[In the first case related, the hydrocele was of three years' standing, and had been several times tapped, but filled again.]

The trochar was introduced, without any preliminary incision in the integuments of the scrotum being made, and the fluid withdrawn. A solution, consisting of a drachm of iodide of potassium, dissolved in an ounce and a half of water, to which four drachms of the tincture of iodine of the pharmacopœia was added, was then injected. Immediately upon its introduction the patient complained of very severe pain, which he referred to the cord and scrotum on that side: no pain in lumbar region. The fluid was permitted to remain for little more than three minutes when it was withdrawn.

[The treatment in this case, and in two others which are related, was successful. After remarking on the various kinds of injec-

tions used for the radical cure of hydrocele, and in particular on the formulæ of MM. Velpeau and Blandin, the writer observes:]

These modes of using iodine for the radical cure of hydrocele appear to be objectionable, because the action of the iodine must be partial, and more energetic upon some parts of the sac than upon others: indeed, the undiluted tincture injected into the cavity of the tunica vaginalis would seem to be more likely to excite the suppurative than the adhesive inflammation. A modification of this plan, however, first suggested by Mr. Adams of the London Hospital, appears to be free from this objection; this consists in introducing through the canula, after the evacuation of the fluid, a camel's-hair pencil dipped in tincture of iodine, with which the interior of the sac is painted.

The injection for hydrocele recommended by the continental surgeons, made by mixing tincture of iodine and water, appears to be likewise objectionable; because, as iodine is scarcely soluble in water, when the two liquids are mixed, the iodine in substance will be precipitated, and coming in contact with the lining membrane of a portion of the sac will be liable to excite an unnecessary amount of inflammation there. The surgeons who have reported in favour of this mixture appear to have referred too much to the iodine, and too little to the rectified spirit which forms the menstruum of the tincture; in fact, a mixture of one part rectified spirit (such as is used for making the tincture), and two parts distilled water, without any iodine, if injected into the tunica vaginalis would, in the majority of cases, excite sufficient inflammation to bring about a radical cure.

In the foregoing cases, the inconvenience of the precipitation of the iodine was avoided by adding a sufficient quantity of iodide of potassium to render it soluble in the water; about one drachm of this salt was found to be sufficient to render the iodine of four drachms of the tincture soluble in an ounce and a half of distilled water. The formula for the injection used in these cases was the following:—

℞. Iodid. potassii, drachmam.; solve in aqua distil., ℥iss.; dein adde tinct. iodinii, ʒiv.; fiat solutio.

In using this solution it is not of any importance if all the fluid injected does not return; any which remains will be quickly taken up by the absorbents.

In conclusion, I may observe that it is generally advisable in the operation for the radical cure of hydrocele by injection (no matter what the nature of the fluid used), not to make any preliminary incision in the integuments of the scrotum; as the canula will be then grasped more firmly, there will, therefore, be less risk of its slipping out, or of the fluid being injected into the cellular tissue of the scrotum.

Dublin Medical Press, Aug. 30, 1848, *p.* 129.

117.—ON THE TREATMENT OF VARICOCELE BY PRESSURE.

By Dr. L. R. Thomson, Dalkeith.

[In Retrospect, Vol. XV., p. 281, will be found an article on this subject by Mr. Curling, who recommended the use of the moc-main lever truss. Dr. Thompson thinks that he has invented a more efficient instrument, and strongly recommends the plan of treatment by pressure, for, as he observes, varicocele not being a dangerous disease, a serious operation for its removal is unwarrantable. It is important to remember, that in applying pressure for the relief of varicocele, we are not to attempt to obliterate the veins. Dr. Thomson remarks:]

The plan I am advocating does not aim at obliterative pressure—it only seeks to restore the diseased vessels to their natural tone and calibre. This is to be effected by maintaining such an amount of firm, steady, and equable pressure over the external abdominal ring as shall not permanently obstruct, merely afford the weakened vessels proper support at that point, so as to remove the superincumbent weight of the blood from the distended veins below. That the pressure shall temporarily supply the place of valves, rendered incompetent from over distension, is the important desideratum. When the vessels shall have regained their wonted strength and size, then the valves will resume their proper function of resisting hydrostatic pressure. After this end is gained, a cure is established. When properly applied, there is not the slightest risk of the pressure acting injuriously on the testicle, by interfering with the circulation of the spermatic artery. So far from such a result occurring, the testicle will resume its natural size under the influence of pressure, though formerly atrophied on account of the affection. The venous return will be carried on by the vessels not affected with the disease, and probably also to a certain extent by some of the diseased vessels themselves. We are aware that some difficulties in relation to the forces moving the blood, and the pressure exerted by that fluid on the vessels, are presented to the clear comprehension of this theory. And we would here observe, that we rest the claims of this mode of treatment on its practical results, and not on the theory advanced to explain it.

It will be seen from the foregoing statements that a nice adjustment of pressure is necessary. The instrument used by Mr. Curling for this purpose is what has been called the moc-main lever, or Evans's patent truss. This instrument has only a lever spring. Though devoid of a circular spring, I believe it to be sufficient for the cure of most cases of cirsocele, but not without causing great discomfort, when much pressure is necessary to support the superincumbent weight of the blood. In cases of old-standing, such as the one given in this communication, it may even prove unequal to this task. The discomfort does not arise from the pressure exerted by the pad, for it seems superior to others in this respect, but from the tightness with which it is necessary for the encircling belt to

be drawn when much pressure is wanted. The moc-main truss being faulty in these two particulars, *i. e.*, not always able to keep up the varicocele, and giving rise to uneasiness from the tightness with which it is sometimes necessary to fasten the encircling belt—I was led to contrive a different and more efficient kind of instrument. This is a combination of the ordinary spring and lever truss; it has therefore a circular and lever spring, to the former of which the pad is attached in such a manner as to admit of slight elongation. The pad may or may not be stuffed with moc-main; the simple cork and flannel pad will be easily borne in most cases. The length of the pad should depend upon the extent of the disease.

In concluding these remarks, we would repeat the great principle of treatment to be, the application of such an amount of pressure at the external ring as shall take off the weight of the column of blood from the distended veins below, and, in this manner, permit of their returning to their natural tone and dimensions. I am convinced that the chief element in this method of cure must be the relief afforded to the over-distended vessels by the removal of *superincumbent* pressure. That the superincumbent weight of the blood does act injuriously, and that its removal must act beneficially on a varix, may be easily demonstrated. To illustrate the pooint, we prefer quoting a great authority to giving any statement or explanation of our own. The illustration was made on a patient who had an unusually large cluster of varicose veins on the inside of the leg, "while the *vena saphena major* was of enormous diameter. If I put on a bandage," says Sir Benjamin Brodie, "and squeezed the blood out of the veins below, and then put my thumb on the *vena saphena* above, so as to stop the circulation through it, I found, on taking off the bandage, the patient being in the erect posture, that the cluster of veins below fille l very slowly, and only from the capillary vessels." But on removal of the pressure, the valves of the vein being useless, "the blood rushed downwards by its own weight, contrary to the course of the circulation, and filled the varicose cluster below almost instantaneously."

Monthly Journal, Nov., 1848, *p.* 295.

SYPHILITIC AFFECTIONS.

118.—ON THE TREATMENT OF VENEREAL DISEASE GENERALLY.

By M Ricord.

[At the end of his course of lectures on venereal disease, published in the Lancet, M. Ricord gives the following recapitulation of the doctrine he inculcates:]—

The great class of venereal diseases comprises two very distinct orders—first, the non-virulent diseases, the type of which is blennorrhagia; the second, the virulent diseases, the type of which is chancre.

First order.—The blennorrhagic affections do not taint the constitution, are not transmissible by heredity, and never yield any positive results by inoculation either on the skin or mucous membranes: they are contagious in the manner of irritants, the simple catarrho-phlegmonous discharge being the most common form.

Second order.—The *virulent* affections owe their origin to a peculiar principle, to an ulceration which can be reproduced at will, and inoculable within a certain period. The ulceration always springs up at the very spot where the virulent matter has been implanted, and its evolution takes place in a variable space of time. The virulent effect may remain strictly local, and merely give rise to consecutive phenomena, of which the most common is the suppuration of the inguinal glands; but it may penetrate into the economy, and determine in the same a set of characteristic symptoms. The general infection of the system is the result of an idiosyncrasy which does not invariably exist in every individual. The most tangible phenomenon of this infection is the specific induration of the chancre. There is no such thing as a specifically indurated chancre, without subsequent symptoms of constitutional syphilis. Once or twice in a hundred cases the induration may be ill-defined, and pass unnoticed; but if the attention be directed to the inguinal glands, (which inevitably suffer by the infection.) the existence of an indurated chancre may, by their state, be inferred; for a bubo, consecutive to such a chancre, *never* suppurates specifically. There is no constitutional syphilis without a primary local accident. When the infection has taken place, we may look for the secondary manifestations within a twelvemonth. But if a mercurial treatment be used, these manifestations may be prevented or retarded for more or less time, or perhaps for ever. When no treatment, however, has intervened, there is an admirable order in the succession of the manifestations, which is denied only by those people who will not be convinced. Primary, consecutive, secondary, transitory, and tertiary accidents follow each other with the most perfect regularity. But I repeat it,—a treatment breaks up the order altogether. If a mercurial course has been gone through, the secondary manifestations may, under its influence, be retarded for a variable time; but it does not destroy the diathesis, and merely postpones the secondary symptoms. On the other hand, you will remember that the mercurial treatment does not prevent tertiary accidents, and these may even appear whilst the secondary symptoms are being kept off by mercury; the latter may then make their appearance *after* the tertiary accidents have disappeared, and thus the order of the manifestations may be totally inverted. Constitutional syphilis can be contracted but *once*,—the diathesis can never be doubled. The diathesis persists, but the manifestations are not certain or inevitable. This diathesis is not incompatible with health. Syphilitic cachexia is very rare. The non-virulent affections require no specific medication, neither do the virulent primary accidents; mercury is used for the latter only in exceptional cases; namely, where the chancre is indurated. Constitutional

syphilis demands a mercurial treatment; but when the later secondary symptoms and the tertiary have come on, mercury should be abandoned, and iodide of potassium be taken up. The latter is then the medication *par excellence*. Whenever we have to treat any peculiar disorder or affection of the viscera, along with syphilis, we should never lose sight of the indications which belong to that intercurrent disease, and should even delay the specific medication, if found necessary.]

[Dr. de Meric, the reporter of these lectures, subjoins a list of the formulæ used by M. Ricord at the Hopital du Midi, which will be found in our Synopsis at the end of this volume.]

Lancet, June 24, 1848, *p.* 681.

119.—*On the Treatment of Tertiary Symptoms.*—By M. Ricord.—[Tertiary symptoms, M. Ricord observes, will not inevitably occur in the course of syphilis, but they are very likely to do so if the treatment of the primary and secondary symptoms be not conducted with the greatest care. As soon as ever the tertiary period has set in, mercury must be abandoned, and iodide of potassium given. Nay further, as mercury taken in time, may prevent or retard secondary symptoms, and so may be regarded as a prophylactic against them, so may iodide of potassium be regarded as a prophylactic against tertiary symptoms; and therefore, M. Ricord observes,]

To render the treatment of secondary syphilis complete and rational, it should always be followed by the exhibition of iodide of potassium. This substance is, however, not only useless, when employed against secondary symptoms and those of transition, but very often hurtful; yet, when secondaries have been of long standing, it may produce beneficial effects; it is also useful as an adjuvant of mercury, in those affections which in some degree lie between the secondary and strictly tertiary manifestations; and finally, it is indispensable for combating the symptoms of a decided tertiary nature. Walsh was the first practitioner who used iodide of potassium, as an anti-syphilitic agent; before him, this peculiar power was perfectly unknown. But his experiments were more calculated to cause the entire rejection of the remedy, than to favour its general adoption, for he gave it for all affections which were then looked upon as syphilitic—blenorrhagia, epididymitis, chancres, &c. I have been at much pains to ascertain its action, and after many trials, I have arrived at the conviction, that its effects are limited to accidents of transition between the secondary and tertiary periods, and to the tertiary symptoms themselves. It is likewise a mistake to suppose that the iodide of potassium cannot act unless the patient have previously been subjected to a mercurial course. Any syphilitic accidents should be treated according to the medication essentially fit for them, without paying much regard to the means used anteriorly. In order to become well acquainted with the proper manner of administering the iodide of potassium, we

should take the trouble of studying its effects independently of its curative action. First let us see how it acts on the skin. It may produce on the cutaneous surface divers psydracious and acnoid eruptions. The pustules are generally surrounded by a vividly red areola, and the usual seat of these eruptions is *below* the umbilical region, as the nates, thighs, &c., whereas the common acne (not to mention its other characters) is mostly situated in the upper half of the body. To these peculiarities it may be added, that the pustules will fall in immediately the administration of the iodide is interrupted. Exanthemata, impetigo, and lichen, are very apt to be produced by the use of this salt; and what you ought especially to keep in mind is, that ecchymosis, and purpura in the inferior extremities, are sometimes caused by the action of the iodide of potassium. The effects of the latter on mucous membranes should also be carefully observed. It may cause inflammation of the conjunctiva, the sub-mucous cellular tissue lying under which gets then infiltrated and puffed up; the eyelids turn red and œdematous, and when the inflammation and effusion are not arrested, the internal parts of the eye become involved in the affection, and photophobia is the result of this state of things. The normal mucous secretion is always a little increased, but it does not take the muco-purulent character, as in the case of catarrhal ophthalmia. Coryza of a more or less severe nature often exists at the same time: it is preceded and accompanied by headache, and a pretty abundant mucous secretion; but this coryza never reaches the suppurative state; it never produces more than a catarrho-serous flux. These affections never give rise to any fever, and they disappear as soon as the iodide is given up. This coryza is an accident which we should not overlook, for it is of importance to avoid it when we have to treat a tertiary affection of the nasal fossæ. As for the effect of the iodide on the intestinal canal, I have to state that persons enjoying good health can bear very large doses of it; I have given as much as fifteen drachms a day. M. Puche has often given ten drachms per diem, after commencing with six; and it has been noticed that it improves the appetite of the persons who use it. With some patients a certain pleurodynic sensation, corresponding to the cardiac extremity of the stomach, is felt after its ingestion, but it never causes vomiting. The sub-mucous cellular tissue of the stomach may, by the use of this iodide, undergo the same modifications which we have noticed the conjunctiva to be subject to—a sort of hyper-secretion and intestinal ptyalism take place, and much of the fluid which ought to have been secreted by the skin is rejected by the mouth. This liquid has a slight taste of iodine; it is not fœtid in the least; the gums are not swollen, and there is no fœtor in the breath, as happens in mercurial ptyalism. The same effect may be produced on the other portions of the intestinal canal; the patients are then seized with abundant serous diarrhœa. The iodine is eliminated from the system by the kidneys; half an hour after the ingestion of it, its presence may be ascertained in the urine, and it should be remem-

bered, that the presence of iodine in the blood increases the renal secretion. I have even observed a case of polydipsia which went on as long as the iodide was used, but disappeared when the latter was discontinued, and gradually sprang up again as the use of the salt was resumed.

The effects of the iodide of potassium on the circulation are of a sedative kind; it diminishes the number of arterial pulsations and lowers their force, but they may regain their normal standard if the remedy act beneficially on the system: the same arterial energy may also reappear when the iodide causes a slight phlegmasia. This salt is somewhat antiplastic, for it has rather a tendency to liquefy the blood, and may even produce the peculiar hemorrhages of purpura. When the effect of the iodide on the nervous system is carefully watched, it is found to cause a certain excitement of the nervous centres, followed by a little uncertainty in the movements and in the intelligence.

Doses and Forms.—If the efficacy of the iodide of potassium has ever been doubted, it is because no one would venture to give it in doses sufficiently large to test it fairly. Most practitioners confined themselves to three or four grains a day—no wonder that no effects were produced. The daily dose ought to be fifteen grains to begin with; two or three days afterwards, forty-five grains may be given every day in three distinct doses. If the remedy has no pathogenic effect we must be guided by the therapeutic action, so that if the curative effect be not apparent at all in three or four days, the dose should be augmented. The influence produced on the osteoscopes may very well serve as a criterion of the action of the remedy, provided these osseous pains do not arise from suppuration, and they be strictly a result of the diathesis. I have had patients in whom the removal of these pains required as much as one drachm and a half, two drachms, and even three drachms per diem. When a certain dose has once been fixed upon, it ought to be persevered in as long as the therapeutic effect is evident, and so long as the pathogenic action is not alarming. But the medical attendant must in this matter, as in many others, use his judgment, and regulate the modifications which the treatment is to undergo, according to the peculiar circumstances of the case.

Forms.—The iodide of potassium has been given in capsules, in solution, in syrup, &c.; rarely in the form of pill, for this salt is very deliquescent; I generally give it in syrup, and I have found bitters to be the best adjuvants—viz., syrup of gentian, of saponaria, of quassia, *de cuisinier*, of sarsaparilla, &c. One pint of syrup is to be used for one ounce of the iodide, which will give about twelve grains to the spoonful; the same quantity may also be given in the sweetened mistura acaciæ, or in the syrup of poppies, or of lactucarium. As to the diet, it ought to be of a tonic and regenerating nature—chops, steaks, wine, porter, &c. You see, therefore, that we knew pretty well what ought to be the daily dose of the iodide, but we are not so well informed as regards the absolute quantity which can be given with safety; it is impossible to fix

this beforehand. Neither do we know exactly how much time this medication may be continued in order to free the patient from the possibility of a relapse. I will merely repeat here what I said about the mercurial medication—namely, that the iodide must be kept on for as long a time as will fairly warrant us in supposing that it has done its duty; but you must recollect that neither this salt nor mercury is a certain and unfailing protection against relapses. Yet I must say that patients who have persevered with the iodide for three or six months have remained a long time without fresh attacks, and they will perhaps never experience any.

There is no occasion for fearing (as some practitioners do) that glandular organs will be in danger of undergoing the process of absorption by the use of iodide of potassium. This apprehension is quite unfounded. If these organs are not diseased, they will not diminish under the use of the iodide, as this substance exercises its activity only upon tissues attacked with tertiary affections. You must be careful to modify the treatment just described according to certain peculiar manifestations. For instance, when you have to contend against syphilitic sarcocele, and the same is exempt from complications, it will be sufficient to use the general treatment. But when there is much inflammation, you must have recourse to antiphlogistics and emollient applications; and if it were noticed that the testicle is suffering both from syphilis and struma, anti-scrofulous remedies should be added to the usual treatment of such cases. The plastic effusion will be efficiently controlled by rubbing the part with the mercurial ointment, and covering the whole with a soothing cataplasm; and much benefit will likewise be derived in these cases by the methodical compression with strips of plaster, which was spoken of when I considered epididymitis. If you have elastic tumours of the testis to treat, the best practice is to open them as soon as fluctuation is detected, and you should have recourse to sedative applications when you perceive that they are surrounded by an inflammatory areola. But when the ulceration presents no redness, nor any symptoms of irritation, a very good wash may be made with a solution of iodine, in the proportion of one half or a whole drachm to 12 ounces of distilled water; and when this solution is being prepared, a certain quantity of iodide of potassium should be added, to prevent the precipitation of the iodine. If the granulations of the tertiary ulcerations are too prominent, they should be destroyed with the pâte de Vienne, or any other caustic. When elastic tumours are not situated in the scrotum or testicle, they may be attacked by every energetic means —viz., mercurial frictions, Vigo's plaster, blisters followed by irritative dressings, as advised by Malapert, &c.; and where suppuration has occurred, the matter should be freed without delay. As for the elastic tumours situated on the mucous membrane of the nasal fossæ or mouth, they may be very beneficially acted upon by lotions containing a solution of iodine, in the proportion of two to six parts of this substance to one hundred of distilled water; in

fact, the proportion of the iodine may be increased as long as no pain is produced by the application.

The muscular retraction, or plastic degeneration of the muscles, requires local applications besides the internal remedies. Topically, I use circular compression, carefully applied with strips of Vigo's plaster.

Lancet, June 17, 1848, *p.* 656.

120.—ON GONORRHŒA IN THE FEMALE.

By Dr. Egan.

Dr. Egan, in the Dublin Quarterly Journal, has given a statistical summary of the particulars of 112 cases observed in the Westmoreland Lock Hospital, from which it will at once be seen that gonorrhœa in the female is not confined to the vagina, but extends itself to the uterus, involving the neck and very frequently penetrating the cavity of this organ; and thus, by a vitiated secretion of muco-purulent matter from the cervix uteri, or from the internal lining membrane of the uterus, the disease may be kept up for an indefinite period, while the vagina may be perfectly healthy. Such was the case in fourteen instances detailed, in which no disease of the vulva or nymphæ was apparent, while a copious discharge was the result of a diseased state of the uterus. In ninety-eight cases the vagina presented a more or less inflamed appearance. In thirty-eight, granular erosions were apparent on the cervix uteri, with attendant induration in six. In fifty-seven, the os and cervix exhibited an erythematous condition, generally accompanied with engorgement and slight induration. In six, there was hypertrophy of the anterior lip of the os uteri. In six, there was enlargement of the posterior lip. In thirteen, both lips were equally engorged. In ninety-seven, the uterus participated in the disease, which was evinced by a muco-purulent discharge from the os.

Medical Times, June 10, 1848, *p.* 89.

Dr. Egan says the most successful plan of treatment is that recommended by M. Ricord, which consists in the application of solid nitrate of silver to the sides of the vagina and neck of the uterus; the immediate effects of this application will be to increase the discharge, but it will, after a few repetitions, either diminish it considerably, or arrest it altogether. The acid nitrate of mercury may be applied to the same diseased structures with like beneficial results. In many cases of inveterate amenorrhœa, which had resisted every form of constitutional treatment, the direct application of caustics to the cervix uteri was followed by a re-establishment of healthy uterine secretion, at first scanty, but after a short time normal, both as to quality and quantity. The separation of the walls of the vagina by means of a plug of lint will assist materially in the cure of the disease. From the frequent participation of the uterus

in the disease, injections of nitrate of mercury and silver have been repeatedly recommended to be thrown into the cavity of the organ. Some danger attending this operation, as a substitute unattended with danger, a finely-pointed pencil of nitrate of silver is recommended to be introduced through the os, and allowed to remain in contact with the lining membrane of the uterus for a minute or two. Conjointly with topical applications, preparations of steel, more particularly the compound iron mixture, have been found very efficacious in restoring the uterus to its original healthy condition.

Medical Times, June 17, 1848, *p.* 112.

121.—*On the Treatment of Gonorrhœa in the Female.*—By Dr. R. G. Mayne, Surgeon to the Leeds Lock Hospital.—[Observing the inefficiency of the ordinary treatment in some cases of this affection, and finding by the use of the speculum that when the vagina seemed approaching the healthy state, a thick muco-purulent matter still oozed abundantly from the inflamed and puffy lips of the os uteri, Dr. Mayne was led to conceive that the neck and even cavity of the uterus formed a sort of laboratory from which the vitiated secretion issued, to re-infect continually the vaginal membrane.]

"Accordingly," he says, "after some hesitation as to taking so great a liberty with a reputed delicate organ, I boldly introduced the solid nitrate of silver well through the neck and into the cavity of the womb, on three occasions, with an interval between them of about a week, and was gratified in finding that this proceeding perfected a cure, without a single bad consequence, and scarcely with any sensation of pain from the remedy. This was in one of the two cases mentioned; but in the other, the patient having been taken seriously ill from very different causes, I cannot certify the result."

[Dr. Mayne shortly afterwards found that Dr. Egan of Dublin entertained, and had published similar views, as to the uterus being involved in the disease. This gentleman also agrees with Dr. Mayne that the treatment of gonorrhœa in the female must be based on different grounds from that of the same disease in the male.]

Dr. Egan observes, "Balsams and cubebs, which are found so efficacious in the treatment of this affection in the male, prove almost inert in the female;" and the fact is *more* than borne out by my own experience; but as that gentleman gives no reason—at least none appears in the extract in question—why they should be so, I beg leave to state my own account of the matter. M. Ricord has established pretty clearly, that the action of these substances is strictly local, and that their curative effect on the diseased mucous membrane of the urethra is solely produced by their becoming mingled with the urine, and being in this way brought into direct contact with the affected surface as often as the contents of the bladder are discharged. Hence their unquestionable efficacy in

this disease in males, which, under ordinary circumstances, involves the lining membrane of the urethra alone; but hence, also, they are not of the slightest use in the treatment of females, excepting only in the comparatively rare instance of the urethra in them being also included in the attack; nor will they then be of any service, save as a remedy for the urethral portion of the diseased surfaces. I have long acted on this conviction, both in hospital and in private practice, and the results have satisfied me of its truth.

Another idea arising out of this conviction, and carried out in my practice, has yielded proofs of its title to consideration—namely, that *copaibal injections*, as presenting the closest imitation of the mode of action when copaiba is taken into the stomach, would be most likely to correct the vitiated condition of the vaginal membrane, copaiba being, after all, the sheet-anchor to which our various floating theories of medicinal treatment have to trust. I have found the disease obedient to the use of these, more than of any other kind of injection usually employed. Their proper strength it is not easy to fix, as this must necessarily vary according to age, idiosyncrasy, habit, &c., the same injection producing in one patient all that is to be desired, without sensation of pain; and in another, or in the same at a different period, perhaps an intolerable degree of "rawness," as it has been expressed to me, and suffering, so as altogether to forbid its use for a time. About a drachm of the soluble balsam, however, to a pint of water, will be found generally applicable, the practitioner increasing or reducing this proportion as he sees fit.

It appears requisite to say a few words as to the manner of applying the injection; for on that, I am persuaded, greatly depends its success; and it is no uncommon thing for the patient to assert she has done everything you directed her to do, for weeks or even months, yet feels herself no better, when it is found, by some accidental expression or remark, that from a misapprehension of your meaning, or neglect of your instructions, she has done scarcely anything as you desired. The patient having placed herself in a half-recumbent posture, a female-syringe, charged with copaibal solution, must be introduced by her left hand, fully as far as the nut of its base, into the vagina, and the external parts are to be firmly pressed by the same hand around the instrument, to prevent escape of the injected fluid; the piston is then to be slowly pushed into the cylinder by the fore-finger of the right hand, so as to discharge the contents into the vagina, where both injection and instrument (which latter cannot be withdrawn without being accompanied by the former) are to be retained for at least five minutes, the right hand being now made to assist the left in securing its complete retention for this space; the whole to be repeated four times a day, or oftener. A further improvement on the customary method of using injections in this disease seems worthy of mention. Existing alone, or where combined, as it often is, with leucorrhœa, the entire vaginal passage is coated over with a thick, or glaizy mucus, or muco-pus, sufficient to protect, in considerable degree,

the subjacent membrane against the irritating qualities of the injected fluid. And it will be found that the latter has had little other effect than to convert this mucus or muco-purulent coating into a white ropy substance, leaving the vitiated condition of the secreting membrane scarcely affected by the remedy. To overcome this difficulty, it is advisable to remove, as completely as possible, this ropy mucus, and repeat the process of injecting immediately, upon each of the four or more occasions daily of its use. By this means the membrane will be more certainly placed in direct contact with the copaiba, just in exact imitation of the natural means for its regular administration, if taken into the stomach, when the disease is in the urethra. It will be highly advantageous, also, to insert, as far into the vagina as may be, a piece of lint about six inches square, folded into four, or a breadth of about an inch and a half, and saturated with copaibal solution, there to remain during the intervals of applying the syringe, both as a means of keeping the diseased surfaces apart, and of maintaining the curative influence of the copaiba.

I now come to the still more interesting and important part of the subject—the treatment of blenorrhœa in the female, in those intractable cases in which the most careful and assiduous use of the entire means already noticed is effectual only so long as persevered in; and in which, time after time, as soon as desisted from, the disease reappears. It is to be recollected, that on the continent, where matters of this nature have been examined with much more minuteness of inquiry than in this country, the true anatomical character of the lining membrane of the womb, whether mucous or serous, or partly both, is even yet a subject of dispute, and that it is comparatively only of late date that we have learned how rough a degree of handling that important organ will bear, without any serious effects being induced. Enough has been said as to what I considered to be a new view of the cause of disappointment, two years ago successfully acted on by me, as already stated; and little can be added to the notice previously taken of the treatment adopted on the occasion. It is reasonable to judge, however, that the copaibal solution would prove as curative of the mucous membrane of the uterus under this disease, as it does in that of the vagina in the same state, the objection to its use for this purpose being the difficulty, or impossibility, of properly applying it. Therefore did I use the solid nitrate of silver, and with the expected beneficial result; but I have since employed an ointment of six or eight grains of the salt to one drachm of axungia, to which I give a decided preference, as more certain to extend the cauterizing effect over the entire internal surface, and as obviating all risk of a very awkward, and by no means impossible occurrence—the breaking of the caustic pencil and lodgment of a part in the uterus! The same ointment may in like manner, and for a like reason, be employed on the vagina, where desirable, in lieu of all kinds of injection; and is capable of being more efficiently applied than the *firing process* adopted by Ricord, and approved as "the most successful

plan of treatment" by Dr. Egan—viz., the direct application of the solid nitrate of silver to the sides of the vagina. To sum up, it appears that

1. In the treatment of blenorrhœa in the female, copaiba, cubebs, and all similar substances employed as constitutional remedies, are useless, except only where and so far as the urethra is implicated.

2. A solution of copaiba promises to be more efficacious than any other kind of injection, on the principle of the ascertained *modus operandi* of this substance, internally administered, for this disease in the male.

3. The perplexing intractability of certain cases frequently depends on the neck and cavity of the uterus being involved in the disease. In such, recourse must be had to caustic, the most convenient form being that of ointment introduced by means of an elastic bougie.

Lancet, Aug. 5, 1848, *p.* 146.

[Dr. Egan makes the following remarks with reference to Dr. Mayne's statements:]

As regards the curability of the disease, and the mode of treatment prescribed, the result of my experience is at variance with that of Dr. Mayne, having learned in our Lock Hospital, an institution by far the most extensive of the kind in the United Kingdom, that the most intractable form of disease the practitioner is called upon to treat is that under consideration; and even at the present day, I have no hesitation in declaring, that instances of permanent cure are by no means of such frequent occurrence as commonly represented. I am fully aware, however, that from the temporary cessation of the discharge, and subsidence of more urgent symptoms, the attendant is very generally induced to indulge sanguine hopes of ultimate recovery, and, in many cases, to pronounce a permanent restoration to health; but should he at some future period have an opportunity of encountering his patient, and examining the condition of the uterus, he will find, too frequently, that the disease still lingers behind, the os remaining swollen and patulous, giving exit to a vitiated secretion, less abundant, perhaps, than formerly, and resembling more the peculiarities presented in leucorrhœal habits.

The local plan of treatment which I suggested as the most likely to prove efficacious, was the application of solid nitrate of silver to the sides of the vagina, and its introduction into the cavity of the uterus when diseased. To this "firing process," as he terms it, Dr. Mayne objects, and, in its stead, proposes an ointment of six or eight grains of nitrate of silver to an ounce of lard, which he states is more likely to extend its cauterising influence over the entire internal surface, and further obviates the possibility of the breaking of the caustic pencil, and its remaining in the uterus.

As to the effect of the solid caustic when brought in contact with the walls of the vagina, or applied to the exterior or interior of the uterus, it may be necessary to add, that so trifling is the pain or inconvenience attending it, that patients are constantly in the habit

of walking distances to their homes, almost immediately after the operation, without exciting the slightest inflammatory symptoms; and as to the likelihood of untoward effects resulting in consequence of the breakage of the caustic, although such an occurrence may be possible, yet I think it highly improbable, in the hands of an experienced manipulator. I have not, I confess, exactly made trial of the ointment recommended by Dr. Mayne, but I have invariably found that greasy substances introduced into the vagina were never productive of advantage, and since no stringent objection has been urged against the use of the solid nitrate, I shall continue to employ it until I meet with a more desirable application, and one more calculated to effect a radical cure.

While Dr. Mayne agrees with me as to the inutility of the balsams, or cubebs, when administered internally, he strongly recommends the employment of copaibal injections, as most likely to correct the vitiated condition of the vaginal membrane, and further remarks, that he has found the disease obedient to the use of these, more than of any other kind of injection usually employed. Impressed with the accuracy of the opinion promulgated by M. Ricord and others, that the action of these substances is purely of a local nature, I commenced, about three years ago, the employment of copaibal injections, on a large scale, on the female patients in the hospital, and on two or three males whom at that time I happened to be treating for the same affection; but after persevering for some months, both in hospital and private practice, I was obliged to relinquish their employment, never having been able to trace a single successful case as the result of that particular line of treatment.

Lancet, Sep. 2, 1848, *p.* 261.

[Dr. DE MERIC remarks that both Dr. Mayne and Dr. Egan have been anticipated by M. Ricord, in regard to the true pathology of gonorrhœa in the female; Ricord having for some years expressed the opinion, that the disease not only extends to the uterus, but may travel along the fallopian tubes to the ovaries. As to the efficacy of copaibal injections, respecting which Drs. Mayne and Egan differ,]

M. Ricord, in his seventeenth lecture, (Lancet, December 11, 1847, p. 618) says, "Some people have thought that blennorrhagia might be cured by applying the balsam directly upon the affected mucous membrane, but this mode of administration *has never succeeded.*" This remark refers to blennorrhagia in the male; let us see what the same authority says regarding the other sex, (Lancet, Feb. 5, 1848, p. 144) "Copaiba and cubebs taken internally are of no use here, (vaginal blennorrhagia) the mode of action of these substances sufficiently accounts for this. M. Piorry has tried the injection of both drugs mixed with water, or other menstrua, but obtained *no satisfactory results.*" Now, if I may be allowed a few words more, I will conclude by mentioning a slight misapprehension into which both Dr. Mayne and Dr. Egan have fallen, when

quoting M. Ricord's opinion as to the *mode of action* of copaiba. The former gentleman, namely, states, "M. Ricord has established pretty clearly that the action of these substances is strictly local, &c;" and the latter, "impressed with the accuracy of the opinion promulgated by M. Ricord and others, that the action of these substances is purely local, &c." Now it will be seen from the following quotation of M. Ricord's lectures, as published in the Lancet of December 11, 1847, p. 617, that although the action of copaiba *be local*, the substance must acquire new properties by the elaboration of the kidneys in order to cure by contact—"*direct anti-blennorrhagic action.* Copaiba, after being taken up by the torrent of the circulation, is elaborated in the kidneys, so as to acquire *new properties.* Thus it is that the urine of persons using copaiba has a peculiar smell, very easy of recognition for those who have had practise in these matters. This principle, *the result of the renal elaboration,* is contained in the urine, and it is by means of *this peculiar element* that the affected surfaces become modified." If this view of the action of copaiba be admitted, injections with this substance are of course out of the question.

Lancet, Sept. 16, 1848, *p.* 326.

122.—ON THE TREATMENT OF SWELLED TESTICLE BY NARCOTICS.

By T. C. Jackson, Esq., House Surgeon to the Royal Free Hospital.

[Mr. Jackson relates several cases in the practice of Mr. Gay; cases of gonorrhœal orchitis, some of them very acute with febrile symptoms. The treatment consisted in low diet, a purgative dose, and the administration of tincture of henbane in the dose of one drachm three times a day. The treatment was in all speedily successful. Mr. Jackson remarks,]

The above cases sufficiently illustrate an affection of the most painful nature and of very frequent occurrence amongst the class of persons continually presenting themselves for relief at the different hospitals, and which have been treated successfully with narcotics a mode of treatment based upon the idea that the true pathological condition of the organ is one of great irritability of the seminal apparatus, and not partaking of the nature of inflammation in the strict sense of the term. Should the reader of these cases feel any interest in the matter, I beg to refer him to a paper on the subject by Mr. Gay, published in the Lancet, Vol. I., 1844, p. 602, where that gentleman has detailed at length his views concerning the origin, causes, and pathological condition and treatment of this affection, and who, since the publication of that paper, has treated great numbers of these cases with a success that sufficiently attests its value. We have considerable difficulty in laying aside our preconceived notions and practices emanating from the authority of

our schools, and I admit, on first adopting this plan, I had considerable doubt of its power to relieve a condition usually deemed of sufficient importance to be attacked by antiphlogistic treatment of a severe kind, such as leeches, calomel and opium, antimony, &c.; but observation of a number of cases has convinced me that it is a plan that will usually yield satisfaction to the surgeon; and it is with a view of drawing attention to it that the above cases have been grouped together. Seldom do we find patients at the second visit complain of the tormenting sickening pain so commonly accompanying this disorder, and this prominent symptom being once subdued, the organ becomes quickly reduced to its normal size. There is an interesting fact with regard to the first case on the list, bearing upon the pathology of this affection. The report states, that the action of the aperient appeared to distress him, and add to the irritability of the patient, and no diminution had taken place in the pain. The henbane was increased in dose, and I remember well the statement of the man as to the decided relief he felt from its action. This case may also be taken as a good illustration, as it was considered urgent enough for admission into the wards. Singular relief is sometimes found from the action of a large dose of tincture of henbane, (one or two drachms,) preceded by an active purge, in cases of periodic mania. Are these periodic fits states of augmented irritability, and curable by the same means as irritation in other parts? The value of opium in the irritable condition of the system exhausted by hemorrhage or profuse discharge is well known. The principle being acknowledged, the explanation of the action of this remedy in the disease under consideration is easily shown. The morbid sensibility of the nerves of the testes is diminished by the action of the narcotic. The systemic asthenia being removed, the vascular apparatus recovers its tone, and resumes its proper balance, and that without the corresponding increase of urethral discharge which marks the resolution of the disease when brought about by the ordinary method of treatment.

Lancet, Sept. 23, 1848, *p.* 338.

123.—*On the Treatment of Gonorrhœal Orchitis.*—By Benjamin Phillips, Esq., F.R.S., &c.—[In taking a review of the method of treatment usually employed in this disease, Mr. Phillips states that *punctures*, *frictions*, and *compressions*, are of limited application; *purgatives* are not of use except in moderation, to keep the bowels open; *local blood-letting* produces as much inconvenience as it does good; and *general bleeding* is usually uncalled for. The plan of treatment which Mr. Phillips prefers, is that by nauseants. He says,]

Our ordinary remedy is a nauseating mixture of tartar emetic and epsom salts; and provided nausea be well kept up for forty-eight hours, the testicle trouble is almost always brought under control. But I doubt whether, for out-patients, we can always get the practice followed out: I very much doubt whether, in a ma-

majority of cases, they will take a second dose of the medicine if they suffer much from the nauseating effects of a first. To ensure the nauseating effects of the medicine—without which much benefit is not often observed—we generally begin with half a grain, and then continue the medicine in the dose of a fourth or a sixth of a grain every four or six hours; but it is always desirable so to arrange the doses during the first day as to unsettle the stomach; if this be not done, it is extraordinary the difficulty which is often experienced in obtaining the effect, so complete is the tolerance of the medicine which is often established. If properly employed, it does for the testicle in this affection what it does for the lung in the early stage of pneumonia.

Medical Gazette, June 9, 1848, p. 975.

AFFECTIONS OF THE SKIN.

124.—ON THE ERUPTIVE DISEASES OF THE SCALP.

By Dr J. M. Neligan, Physician to Jervis Street Hospital, Dublin, &c.

[Dr. Neligan divides the eruptive diseases of the scalp into inflammatory and non-inflammatory. The division indicates the principles which should guide our treatment: for the diseases of the first class will not bear stimulants at all during the early stage, and not freely even in their most chronic state. Dr. N. employs Willan's generic names, and uses but one specific appellation for each genus,—that of 'capitis.' He says]

The classification which I propose may be arranged as follows:—

Eruptive Diseases of the Scalp.

Inflammatory.	Non-Inflammatory.
Herpes capitis	Porrigo capitis.
Eczema capitis.	
Impetigo capitis.	
Pityriasis capitis.	

It will be seen that I exclude from this arrangement some diseases of the skin which are ordinarily described as occurring on the scalp. My reason for doing so is, that psoriasis, lepra, and ecthyma, the other eruptions which occur in this situation, are very rarely met with there, unless in connexion with their existence on the skin generally; and their presence on the scalp not requiring any special plan of treatment, they cannot be looked upon as diseases peculiar to this portion of the cuticular surface.

By a still further analysis of this class of skin diseases, we find that the two first-named belong to the order *vesicles*, the third to *pustules*, the fourth to *scaly diseases*, and the fifth to *vegetable growths*.

[*Herpes capitis*, the first form of which Dr. Neligan speaks, is the *contagious ringworm of the scalp*. It usually attacks children of from three to twelve years old. In its early stage it is not often seen, but is then, Dr. N. states, of a decidedly vesicular character. He says,]

When seen, at its commencement, it presents the appearance of a small ring of minute vesicles, not more than an eighth of an inch in diameter, without any redness or other mark of inflammation beyond a slight tingling,—not itching. These vesicles are attended with scarcely any discharge, soon drying up and desquamating; but as they dry up in the centre, they spread from the circumference, and the diseased spots, in the course of a few days, attain the size of a shilling.

If we examine them in this stage, we find that the centre, the part where the eruption first appeared, is thickened, elevated above the surface of the surrounding scalp, and covered with fine scales, which are renewed rapidly on being removed. As the disease proceeds, the patches extend from their periphery, still retaining a perfectly circular shape, and, finally, after some weeks, attain the size of a crown-piece, which I have rarely seen them exceed, no matter how chronic the case may have been. Having attained this size, and ceased to spread, the entire of the diseased surface is thickened, elevated, and covered with fine, soft scales, which the least touch removes. Sometimes but one patch of herpes is found on the scalp, but more generally there are three, four, or more circles, distinct, and at some distance from each other: this, the advanced stage of the disease, is usually attended with much itching.

As the disease advances, the hair assumes a very peculiar appearance, almost pathognomonic of this form of eruption of the scalp. In the early stage each hair appears to be slightly bent on itself, and turned against the grain, obstinately refusing to lie smooth; the roots are also somewhat matted together by the scaly crusts of the eruption. After some time it presents a diseased appearance, being twisted, broken, of a whitish colour, and readily falling out; so that bald patches begin to appear, over which are scattered small bundles of the altered hair, which has been described, not inaptly, as resembling tow. This condition of the hair has induced some writers to describe this affection as a disease not of the scalp, but of the hair itself. Thus Mr. Erasmus Wilson, one of the most recent English authors on diseases of the skin, has named it *trichonosis furfuracea*.

The eruption does not in all cases assume the exact characters I have now described. In the early stage—when, however, it is rarely witnessed by the medical practitioner—its appearance always agrees with the description I have given, except that in some cases there is more inflammation than in others; but in the advanced stages it varies much, both as regards the amount of desquamation and the appearance of the elevated patches: it is this fact which has led to so much confusion in the diagnosis and nomenclature of

the disease. Yet in the most chronic or complicated cases, the circular form of the eruption, and the peculiar condition of the hair, render its diagnosis easy to even the tolerably experienced eye.

Herpes capitis *is the true ring-worm of the scalp.*

[*Eczema capitis* is also a vesicular eruption, but is not contagious, and appears to arise from constitutional causes. In its various stages it presents so much variety as to render its diagnosis difficult: the watery exudation sometimes keeping the hair moist, sometimes drying into membranaceous scales, and at other times forming scabs, with fissures through which the inflamed surface is seen. Dr. Neligan tells us,]

The eruption of eczema on the scalp is preceded by heat, tingling, and itching, which are rapidly followed by the appearance of minute vesicles, crowded together in irregular-shaped patches, or scattered over a large surface. The inter-spaces between the vesicles and the whole of the scalp on which they are seated is red and inflamed; in most cases the vesicles are so minute as to be scarcely recognisable, or at least are not seen by the physician until they have burst and given exit to a copious exudation of a serous fluid by which the roots of the hair are accreted together. In the acute form of the disease this serous exudation continues for a long time, and is a most troublesome symptom; but in the chronic forms—and some cases assume a chronic character almost from the first—it rapidly dries into furfuraceous scales, which are pushed forwards by the hairs as they grow.

The vesicles of eczema usually first appear behind the ear, close to the edge of the hairy scalp, from whence the disease spreads rapidly, very generally attacking the ear itself; in some cases the entire of the scalp will be covered with the eruption in a week or ten days, but in others the disease spreads very slowly.

Impetigo capitis is a pustular disease; and the only one of this class which is met with on the scalp. Its occurrence in children is preceded, for a few days, by feverish symptoms, frequently attended with vomiting; the surface of the scalp is hot and painful, and the part about to be affected presents an erythematous blush. The eruption makes its appearance either in distinct pustules of a *psydracious* character, scattered over the head, or in groups thickly set on an inflamed base. In the former case each pustule is about the size of a small pea, both in circumference and elevation; and is attended with but little surrounding inflammation. On the second day of their appearance, each pustule contains thick yellow matter at the summit, but it is soon matured, when it bursts, and gives exit to the contained pus, which rapidly dries into a greenish-yellow scab. This form of impetigo,—the impetigo sparsa of most writers,—rarely assumes a chronic character, when it has lasted for any time its continuance being kept up by an eruption of fresh pustules on other parts of the scalp; but it most generally passes into the second form.

The second form of the disease is, as I have said, characterized

by the eruption occurring in groups of pustules; but the individual pustules also are different in character, being of the variety which have been termed *achores*. Their appearance is attended with more decided symptoms of inflammation, both general and local, and the heat and itching is in many cases so severe that children tear the scalp and prevent the disease from presenting the truly pustular character of the first stage. The eruption usually commences on the forehead, involving at the same time some of the hairy scalp; the inflamed patches vary in size and form in different cases; in some extending in their longest measurement not more than from half an inch to one or two inches, while in others the greater part of the scalp is involved from the very commencement: in nearly every instance the skin bordering on the scalp is more or less engaged in the disease, and it often appears at the same time on the ears or on some part of the face. The pustules are not so large as when they occur singly; their coats are apparently thinner, and the pus which they contain is not so consistent, and is of a richer yellow colour. They usually become confluent before they burst, and the resulting greenish-yellow (when chronic, greenish-brown) scab is consequently much more extensive. When the eruption has continued for any length of time, large quantities of bright yellow pus are secreted beneath the greenish crusts, which separate in cracks to give exit to the matter, exhibiting beneath the highly inflamed raw surface of the scalp from which the pus is secreted

In either form of impetigo, the hair is unaltered; it is usually matted together by the purulent secretion and the scabs, but it does not fall off or become changed in appearance even in the most chronic cases.

Impetigo capitis is not a contagious disease; it is met with at all ages, but most generally in early infancy, lasting for several years if not properly treated; it very rarely appears for the first time after the age of nine or ten, but I have seen two instances in which the eruption occurred in advanced life: in both the disease was of the form first described.

In the chronic stage of this eruption of the scalp small abscesses very frequently form at the nape of the neck, close to the roots of the hair; and some of the chain of lymphatic glands, which lies behind the sterno-mastoid muscle, become enlarged, swollen, and tender, but they very rarely suppurate.

Pityriasis capitis is a squamous disease; though I have placed it amongst the inflammatory affections of the scalp, the inflammation with which it is attended is, from the first, of a chronic character; it would indeed seem to form an intermediate division between the inflammatory and non-inflammatory eruptions of this part of the dermis. Its appearance is not accompanied by any sign of constitutional or local disturbance, but soon after its eruption on the scalp it gives rise to much itching, without heat or redness of the surface. The disease consists in the secretion of numerous minute, papyraceous, dry scales, in most cases scattered over the entire of the head, without any sensible elevation of the surface, and

perfectly free from moisture. I cannot describe the precise manner in which this eruption originates, as I have never seen it until the squamous secretion was fully developed, there being no symptoms to direct the patient's attention to it until then. The presence of the scales produces much itching, compelling the individual affected to scratch the head, by which the scales are readily detached in large quantity, in the state of a fine powder or *dandriff*; their removal is rapidly succeeded by a further secretion.

Pityriasis is most commonly met with in infants at the breast, the frequency of its appearance decreasing with the advance of years towards puberty, at which age it is very rarely met with, but it again appears at the approach of old age.

Of the four varieties now described, I have met with eczema the most frequently; next to it, impetigo; next, herpes; and pityriasis the least frequently.

[The principles which according to Dr. Neligan must guide us in the treatment of this group of diseases, are, first, that they are inflammatory, and secondly, that they are constitutional affections. Stimulating applications, as before observed, are never to be employed in their treatment until they become very chronic. An important rule in treating all eruptive diseases of the scalp is never to shave the hair: it should be closely cut with a sharp pair of scissors, and kept closely cut so long as any trace of disease remains.]

"The local remedies," says Dr. Neligan, "which I am in the habit of employing are the carbonates of soda and potash, either made into an ointment with prepared lard, or in solution in distilled water or rose-water. I use them of various strengths, according to the form of the eruption, and the greater or less degree of attendant inflammation. The carbonate of potash, being of a somewhat more irritant character, is applicable only to those cases where the attendant inflammation is slight, as it generally is in pityriasis, in many cases of herpes, and in the more chronic forms of eczema; but the carbonate of soda is best suited for impetigo in all its stages, and for the acute and recent cases of the other eruptions. The quantity of either of the carbonates in the ointment varies from twenty grains to half a drachm to the ounce of prepared lard. As it has an unpleasant odour, in private practice I usually add three or four minims of the oil of lemon or oil of bergamot, which addition also makes it keep better; where, however, the inflammation is very active, even this small quantity of an essential oil would render it too stimulant: in all cases I commence with the weaker preparation. The ointment is applied three times daily, being lightly smeared over the eruption; it is washed off with the corresponding alkaline lotion every morning, previous to the first application for the day. In very inveterate cases, where the head is covered with thick, hard scales, a light poultice of linseed-meal should be first applied for twelve hours, the scalp is then to be covered with a piece of old linen, on which the ointment is spread, and an oil-silk cap laid over the linen; this is left on for twelve

hours more, when the scales are readily removable by washing the head with the carbonate of soda lotion. A clean surface is thus procured, on which the ointment acts more readily.

The alkaline lotions are prepared by dissolving from half a drachm to a drachm of the carbonate of soda or potash in a pint of rose water or distilled water. During the whole course of treatment the head is washed, at least once daily, with either of these lotions. They keep the scalp cleaner, and freer from scabs, than soap and water, which, however, I never permit to be used, as the irritant quality of soap tends much to retard the cure. In some cases, with which greasy applications disagree, but which we cannot ascertain except by trial, I use either of these lotions as the only external application; but then I order it to be applied five or six times daily.

In the chronic forms of any of this class of eruptions the application of a mild stimulant to the scalp becomes necessary, but more especially in cases of impetigo and eczema of long standing. The preparation which I have found most useful is a very dilute citrine ointment from half a drachm to a drachm of the officinal ointment to the ounce of prepared lard. This is applied only once daily, at bed-time, and washed off in the morning with the alkaline lotion, which is also used three or four times during the day.

[The constitutional treatment adopted by Dr. Neligan, consists in the administration of the yellow iodide of mercury with hydrarg. c. cretâ, and aromatic powder. Dr. N. says:]

To a child six years old I give half a grain of the yellow iodide of mercury, two grains of hydrargyrum cum cretâ, and two grains of aromatic powder, every second morning; for an older child I order the same quantity every morning; and for a younger child only every third or fourth morning. Should the child, however, be not more than three years old, I order half the quantity to be administered twice in a week; for infants at the breast, I omit the iodide of mercury, and give either the hydrargyrum cum creta or the hydrargyrum cum magnesia: the latter preparation I usually prefer, as it is a more certain mild purgative than the former.

In all cases I keep the child strictly on milk diet during the entire of the treatment.

[*Porrigo capitis* is the only disease in Dr. Neligan's second division. He has fully verified its character as a vegetable growth. Though by the progress of the disease the whole of the scalp, the forehead, the neck, and even parts of the trunk, may become encased in a large yellow crust, yet in its early stage porrigo is very rarely noticed, since it does not give rise to either heat or itching. Dr. Neligan thus describes the disease:]

Porrigo capitis, *the true tinea or scald head*, is a rather infrequent disease, occurring at all ages, but most generally in childhood, from the age of 3 to 12; I have, however, seen one instance of it in an infant only eight weeks old.

The appearance of this eruption is so peculiar, and so distinct

from all the other eruptive diseases of the scalp, that it cannot possibly be mistaken for any of them. It first appears in the form of small, yellow, dry spots, about the size of a pin's head, of a bright yellow colour, seated on the surface of the skin, which is depressed slightly by them; each spot is distinct, hemispherical, slightly concave, or cup-shaped, on its free surface, and convex beneath, where it is adherent to the skin. On removing the small, diseased mass, that portion of the scalp on which it was seated is found to be somewhat depressed, smooth, and shining. A single crust of the disease, or *favus*,—as it has been termed, from its honeycomb appearance,—is often traversed by one, and sometimes by two hairs, which appear to grow, as it were, from the very centre, or most depressed portion; this has given rise to the notion that the disease is one of the bulbs of the hair, but the fact of its appearance on other parts of the body which are quite free from hair is a sufficient refutation of this opinion.

Porrigo capitis is a contagious disease, the vegetable being propagated by the *mycelia*.

[This disease is extremely obstinate, and has been considered by some altogether incurable. But Dr. Neligan has found that it may be cured in a much shorter time than is generally believed. He says:]

The plan of treatment which I have found effectual in porrigo is both constitutional and local. The constitutional remedy which I use is the iodide of arsenic, a powerful alterative and an active remedy, but one which may be given with the greatest safety to the youngest child, its effects being, of course, duly watched. The dose of this preparation is, for an adult, from one-tenth to one-fourth of a grain, very gradually increased; for a child six years old, one-fifteenth of a grain; and for a younger child, from one-eighteenth to one-twentieth of a grain. It is best given to adults in the form of a pill, made with dry manna, and a little mucilage; to a child it is best administered in the form of powder, its minute division being perfected by means of a little white sugar or aromatic powder. When the system is saturated with this medicine, we usually find that some constitutional symptoms, such as acute headache, dryness of the throat, &c., are manifested; but in some cases I have given it in full doses for many weeks without any manifestation of its effects, further than those produced on the disease for which it was administered. When, however, it gives rise to the symptoms above mentioned, its use should be intermitted for some days, and an active purgative administered.

The following is an outline of the local treatment: the hair is to be cut, *not shaved*, as closely as possible, and a large linseed-meal poultice applied and kept on for twelve hours, so as to soften the crusts. As soon as the poultice is removed, the head is well washed with the stronger carbonate of potash lotion, and slightly brushed with a soft hair-brush or roll of lint; the scalp is then covered with the carbonate of potash ointment spread on lint, and over it a

closely-fitting oil-silk cap is placed: the ointment is renewed twice daily. By the use of these applications the crusts of the eruption are generally completely removed in from two to three days. The carbonate of potash ointment is at the expiration of this time replaced by one containing the iodide of lead, in the proportion of half a drachm of the iodide to an ounce of prepared lard; the head is to be still washed every morning with the carbonate of potash lotion. In some cases it will be found that the iodide of lead ointment excites a certain degree of inflammation of the surface of the scalp after it has been used for some days; when such occurs it should not be applied for a day or two, and the lotion alone employed three or four times daily. After this first attack of inflammation disappears, I have not seen it again recur, although the use of the ointment had been persisted in for months. The strength of this ointment should be increased after a fortnight; if the disease again appear, even to double that above indicated. I have only lately employed the oil-silk cap, but its use appears to be attended with the greatest benefit. The advantage derived from its employment is two-fold: in the first stage of treatment, by keeping the hard and firmly-planted crusts of the disease in a constant atmosphere of warm moisture, it softens, and thus renders them more easily removable; and in the after-treatment the mucedinous vegetable being retained by it in the closest contact with the iodide of lead and the emanations arising therefrom, is more certainly destroyed, and its reproduction prevented.

After continuing this treatment for at least three weeks or a month, all external applications should be stopped, and the hair allowed to grow, so as to ascertain if the fungus will be reproduced; for it often lies dormant, and suddenly shoots forth, increasing rapidly when no longer subject to the action of the iodide of lead. Should it again return, the local applications must be had recourse to as before, immediately on its appearance. We should continue the administration of the iodide of arsenic until we are quite satisfied that the cure is complete.

The rational principles on which I think this plan of treating porrigo capitis proves successful, and which first led me to its adoption, are: "*That it is a vegetable production, which grows and is reproduced on the cutcular surface of individuals whose system is in a peculiar cachectic state, and, consequently, that it is a constitutional affection.*" The object, then, is, to destroy the vitality of the fungus, and, by altering the nature of the soil on which it flourished, to prevent its reproduction. It is with the first view that I use the iodide of lead as a local application, and to fulfil the second indication that I administer internally the iodide of arsenic.

My reason for administering the iodide of arsenic internally, in preference to other alteratives, was, that I had seen it productive of the best effects in other cuticular diseases, in which the constitution was much engaged, especially in inveterate cases of psoriasis. I also found that it combined the effects of a tonic and alterative, the class of remedy indicated in this affection, and that its use, even

when continued for a lengthened period, was unattended with danger. I restrict the patients to a purely milk diet, because, as I have already mentioned, when speaking of the inflammatory eruptions of the scalp, I found it useful in their successful treatment.

Dublin Quarterly Journal, Aug., 1858, *p.* 31.

125.—NEW CLASSIFICATION OF SKIN DISEASES.

By M. Baron.

M. Baron has just concluded, in the *Gazette Médicale*, an extensive inquiry touching the localization of skin diseases. He quotes the remarks of Brischet:—"If the diseases of the skin could be strictly localized; if the seat of each cutaneous affection could be anatomically fixed; both practical medicine and pathological anatomy would be immensely benefited;" and has endeavoured to work out this idea. His paper contains many valuable comments: his divisions of skin diseases are as follows:—

1. *Diseases of the vascular apparatus.*—Roseola, measles, scarlatina, erythema, erysipelas, results of the application of a blister, pemphigus, nævus, and purpura. The principal symptom of all these is redness.

2. *Diseases of the papillæ.*— Urticaria, prurigo, hyperæsthesia, anæsthesia, and elephantiasis Græcorum. The principal character of these affections is a lesion of sensibility.

3. *Diseases of the sudoriferous apparatus.*—Abundant diaphoresis, eruption of the sweating sickness, sudamina, miliary eruptions, eruptions accompanying colliquative sweats, vesicular eruptions caused by irritating applications, and herpes. Most of these diseases are acute, and generally connected with a morbid state of the whole system. The most striking local symptom is the existence of isolated or grouped vesicles.

4. *Diseases of the apparatus secreting the epidermis.* — Pityriasis, eczema, psoriasis, ichthyosis, corns, or warts. The common character of these affections consists in a modification of the epidermic secretion.

5. *Diseases of the chromatogenous apparatus.*—Lentigo, ephelides both of the hepatic or melonotic description, vitiligo, and albinism. The principal feature here is an abnormal coloration of the skin, which arises neither from congestion of the vascular network; nor from an effusion of the blood; nor from the mixture with that fluid of any foreign substance which might give the skin or other tissues a particular tint; nor, lastly, from a decoloration of the blood; but from an alteration in the pigmentary secretion.

6.—*Diseases of the sebaceous follicles.*—Acne disseminata, acne punctata, acne rosacea, melitagra? mentagra, impetigo sparsa, and lupus. The principal lesions to be found in these affections are pustules, and very rarely tubercles.

7. *Diseases of the piliferous bulbs.*—Lichen, favus, trichoma, alopecia, canities.

8.—*Diseases of the matrix of nails.*—Onygon, exaggeration in the ungual secretion.

9. *Diseases of the fibro-cellular tissue.*—Ecthyma, rupia, varicella, variola, vaccinia, furunculus. These are inflammatory diseases, which rapidly run through their stages. They are all remarkable (except furunculus) for presenting a circular and flattened pustule, the central part of which is formed by the epidermis, raised either by pus or purulent serosity; and the circumference by a red margin produced by an elevation of the dermis.

10. Diseases affecting different elements of the skin at the same time.—Scabies.

11. Frambœsia, molluscum, &c., are so little known, that the author did not think it necessary to determine their actual seat.

Lancet, July 8, 1848, *p.* 43.

126.—*On the Treatment of Prurigo Pudendi.*—By. G. Corfe, Esq.—Prurigo, where it attacks the pudendum or scrotum, is oftentimes more effectually soothed by a lotion composed of two or four drachms of the terchloride of carbon or chloric ether, in a pint of distilled or elder flower water, than any other application that I am acquainted with; at the same time a warm bath administered every evening affords a calm and refreshing night's rest.

Medical Times, Sep. 9, 1848, *p.* 304.

127.—*On the Treatment of Herpes Zostera.*—By G Corfe, Esq.—The most soothing application that I am acquainted with in this form of rash is the smearing the whole crop of vesicles with fresh-made ungt. hydr. ammonio-chloridi twice or thrice a day. Again, I may remark that in all those forms of eruptive diseases attended with more or less exudation, whether they originate from impetigo, scabies, eczema, or porrigo, &c., it has appeared to my mind to be the most injudicious line of practice to administer alkalis, locally or generally, until we have ascertained the chemical character of the discharge itself; and I believe it will be almost invariably found that the discharge, on the scalp especially, has an alkaline reagency upon test paper. The disease, therefore, should be treated upon more scientific principles than is done by many practitioners. If the exudation is alkaline in character, nitric acid lotion in the proportion of half a drachm to a pint of distilled water should be assiduously applied by means of clean cloths, or, if on the scalp, by the use of a common linen nightcap, and small doses of the same acid given internally with some agreeable bitter, as the compound infusion of orange. The reverse of this treatment must be adopted where the discharge reddens litmus. I have witnessed very striking benefits to result from the use of an artificial Harrogate water, made by dissolving a drachm of fresh and good potassii sulphuretum in a pint of water, and applying it constantly to the ichorous surface.

Medical Times, Sep 9, 1848, *p.* 304.

128.—*On the Treatment of Scabies.*—By G. Corfe, Esq.—[Mr. Corfe states that he rigorously pursues the following plan with a patient affected with itch:]

We provide him with old soiled linen and a worn out sheet; and each morning and evening he is ordered to make a good lather of yellow soap in his hands, and thus dip them wet into a basin of sifted or fine sand, and assiduously rub every part of the body on which the slightest trace of a vesicle exists. Having performed this ablution until the skin tingles smartly, he wipes himself dry and then rubs the common ung. sulphuris firmly into the itchy parts. He is then enveloped in the winding sheet, and has a pair of old gloves on his hands, and he is left till night, when the same operation is pursued, and repeated daily until the fourth day, when he is ordered to indulge (and a great indulgence it is) in a warm bath, where he again lathers his body in plain soap and water, puts on fresh linen and is provided with clean sheets, and the cure is from thence invariably effected. The vesicle of course is broken by the friction of the sand and soap; the acarus is exposed, and this ectozoon receives his death blow by the inunction of the sulphur, which is oftentimes not accomplished by the mere application of sulphur ointment alone.

The use of sand-soap balls is more elegant, though not more efficacious.

Medical Times, Sep 9, 1848, *p.* 304.

129.—*Treatment of Eczema.*—By M. Trousseau. — Professor Trousseau considers solution of bichloride of mercury as very useful in diseases of the skin generally, and especially in eczema. The dose is three grans in every pint of water; the seat of the eruption should be washed five or six times a day with this fluid, and an improvement is very speedily obtained. But the Professor states that even a more powerful treatment in these cases consists in the application of water as warm as it can be borne. At first the local irritation seems increased, but a reaction soon takes place, and the relief is proportioned to the degree of inconvenience at first experienced.

Medical Times, June 10, 1848, *p.* 89.

130.—ON THE USE OF TAR IN CUTANEOUS DISEASES.

By J. Wetherfield, Esq

[Mr. Wetherfield published in 1845 an account of several intractable cases of skin disease which were cured by the use of *tar*, after arsenic and other favourite remedies had been tried in vain. As he still finds the remedy a valuable one, Mr. W. again calls the attention of the profession to the subject. He says:]

Tar was administered in these cases in capsules, each containing ten minims of simple Stockholm tar, and was first prescribed in this form by Dr. Sutro, of the German Hospital. This mode of

administering the tar removes every objection on the score of taste to the use of this valuable remedy, which doubtless would still have enjoyed all the credit it obtained at the time its virtues were so much extolled in the works of Bishop Berkeley, but for its nauseous flavour in the then mode of administering, viz., tar water. Having tested the effect of tar in acne, eczema, impetigo, lepra, psoriasis, prurigo, and sycosis, I will add as briefly as possible one or more cases of each kind thus treated, and the results.

Acne.—Two obstinate cases of this disease, of several years' standing, were published in the report. The face, neck, and shoulders, were much covered and disfigured by the eruption, which had withstood all kinds of treatment. One capsule was given three times a day, and continued for three months. The disease entirely disappeared. Many cases have been subjected to the same mode of treatment since, with such decided good effect as to warrant the belief that tar is as much a specific in acne as sulphur in itch.

Eczema Impetiginodes and Eczema Capillitii.—Both diseases nearly the same in character, the former attacking adults, the latter children. Two cases of the former disease, one of eight years', another one year's duration. Both cases were treated by the internal use of the capsule, and externally the ung. picis. liquid, continued between two and three months, with perfect success. In one of these cases the disease extended over both upper and lower extremities, with patches over various parts of the trunk. The life of the patient was rendered miserable by this disease, which had resisted a great variety of remedies, including arsenic, baths of all kinds, &c.

Eczema capillitii is most common in young persons, beginning on the scalp behind the ears; from thence extending to the body and limbs. Several obstinate cases, of from five to seven years' duration, have been treated with the capsules of tar and ung. picis. liq. very successfully. In one case a bath of tar water was employed instead of the ung. picis., the child being but three years of age. Four ounces of tar added to a sufficient quantity of water to cover the child's body and limbs, is the mode in which the tar bath may be made, and a very efficient remedy it is, free from the objection which might be raised against the ointment, of soiling the linen. This child took the capsules with perfect ease, and, together with the warm tar bath used every other night, recovered in five weeks. Cases of this disease often run a course of five or seven years, resisting every, even the most potent remedies.

Lepra.—A case of this disease came under treatment. The patient was covered with leprous patches. He took the capsules about a month, and the disease decidedly diminished. He was unsteady in conduct, and irregular in his habits, and did not pursue the plan so as to derive all the benefit he might have done. The odour of tar was perceptible in his clothes worn next the skin.

Psoriasis Palmaris et Nasi.—In this disease, in addition to the internal use of the capsules, which should be persevered with a considerable time, the hands should be immersed in a bath of tar water every night for a quarter of an hour, then dried, and powdered with

starch powder. In a case of psoriasis nasi, the cracks which form at the junction of the mucous membrane and true skin should be anointed with ung. picis. liq. very slightly at bed-time, and washed off in the morning with warm water. In a case of this kind which annoyed the patient, who was a great snuff taker, the disease was thus removed in a few days.

Prurigo Senilis.—Two cases in men, one of 85, the other of 90 years of age. These gentlemen were subject to attacks of prurigo, attended as usual with desperate itching and irritation. Various remedies had been employed in vain; lotions of hydrocyanic acid, hydr. bichlorid., &c., &c. The ung. picis. liq. was applied freely on the legs, and over it an elastic roller, occasionally bathing the legs in bran water, to remove the deposit of tar from the skin. Fresh applications were made in this manner every second or third day. This plan soon allayed the itching. Both patients suffered repeatedly from this disease, but always found relief from this mode of treatment, and were often quite free from it for months together.

Sycosis.—A case of this disease, which had resisted a multitude of remedies, amongst others carbonate of iron in large doses, sarsaparilla and lime water, arsenic, mercury, &c., was cured by the internal use of tar in capsules, taken one morning and evening, which removed not only the mealy eruption, but pimples, which were a source of great annoyance and much pain in shaving.

Tar acts as a diuretic and diaphoretic. The odour of tar is distinctly perceptible in the urine of those who take it in capsules. The quantity is somewhat increased, and it is rendered clear and free from all deposits. A physician who took it for acne, and who had studied the analysis of urine long and carefully, told me he had found it entirely remove a deposit of phosphates to which he had been long subject. Increased perspiration, and the strong odour of tar on the linen of those who have taken it, clearly prove its action on the skin. In moderate doses it improves the digestive organs, and invigorates the general health.

In the introductory chapter to Mr. Hunt's work, in adverting to the various remedies which have been employed by others in the treatment of cutaneous diseases, he alludes to that of tar, and speaks of it as humiliating to be tarred externally and internally. I cannot see the justice of this remark; none of my patients ever complained of the process, proper precautions being taken to protect the clothes, the odour of tar being infinitely preferable to that which often accompanies extensive eruptive disease. In a case of this kind, a dust-pan full of scales was swept from the floor where the patient had been dressed; this patient used facetiously to ask me, after I had applied the tar ointment nearly over him, whether I meant to feather him? So much benefit, however, was derived, that I believe this gentleman never regretted the employment of this application, as the skin was brought back to a healthy state, after eight or ten years of distress and suffering.

It is not intended by the foregoing account of the effects of tar to recommend it for all diseases of the skin, especially those com-

plicated forms arising from syphilis; it may act, however, as an adjuvant even in some of these diseases. Neither is it advisable to administer this remedy during the inflammatory stage of many of the endless variations of skin complaints; it is decidedly more advantageous in the second or subacute stage of most cutaneous affections. Doubtless, as Mr. Hunt observes, bleeding and purgatives, with abstinence from stimulating food, is the treatment necessary in all those forms of cutaneous disease attended in the first stage with inflammatory action. Tar certainly deserves a trial in all chronic intractable and senile eruptions, where, owing to peculiar idiosyncrasy, arsenic cannot be administered; and from the experience I have had in the use of it, I do not hesitate to say it will be found highly beneficial.

Medical Gazette, June 30, 1848. *p.* 1110.

[Speaking upon this subject, Mr. Thos. Hunt states that he still retains his preference for arsenic, for the following reasons:]

1. As far as my experience has extended, it has, when regularly and properly administered, never yet failed in any of the diseases enumerated by your correspondent, provided the patient be free from organic disease, and temperate in his habits. And we have yet to learn whether, in any of the cases of reputed failure, the arsenic has been carefully administered in accordance with the conditions I have specified;—and this is an all-important point; for in a majority of my own successful cases arsenic *had failed*, having previously been tried on an essentially different plan; and in many of them, tar had likewise failed.

2. Arsenic not only cures the disease, but, when continued for a certain time after the final disappearance of the disease, *always* in a great degree, and frequently *entirely*, destroys all tendency to the morbid action. This is not the case with tar. On Mr. Wetherfield's own showing, some of his patients were only relieved for the time, and "suffered repeatedly from the disease."

3. Although Mr. Wetherfield's patients appear to have made no complaints—to their honour be it spoken—yet the odour of tar, to say nothing of its trouble and filth, is to some persons intolerable; and to none can it be agreeable to reflect, that they carry it about with them into every company. Arsenic is not open to this objection.

4. Arsenic, besides being more certain and lasting in its effects, as well as less unpleasant, *is as safe as tar*. Of this I have abundant proofs in the history of many thousands of cases. Nor have I yet met with a patient who, from idiosyncrasy, could not bear it. I have explained in my book, that where the system was remarkably susceptible, and in a degree intolerant of the remedy, the disease was so much the more amenable to its influence, yielding speedily to such very minute doses as the patient could bear with impunity.

Nevertheless, if I should meet with a case in which arsenic cannot be borne in any dose, I will certainly give a trial to the tar.

I may perhaps be allowed to add, however, that it is our duty in every case, as it will prove our interest, as well as that of the patient, to try at once the most effective remedy we have at hand, especially if it be safe, and subjects the patient to no annoyance.

Medical Gazette, July 14, 1848, *p.* 81.

[In reply to one of the objections urged by Mr. Hunt against the use of tar in skin diseases, namely its disagreeable odour, Mr. Wetherfield observes that in many cases, such as lepra, acne, and sycosis, the external use of tar is not needed: while in such cases as eczema, which require the external application of the remedy, it is less offensive than the excretions to which the complaint gives rise. Mr. W. then relates a case of lepra recently treated by him. He says:]

In April last I was requested to see a patient living in Villiers street, Strand, and found the case to be one of well-marked lepra in the first stage, attended with much heat and irritation: the disease was nearly confined to the hands and arms, very little appearing on other parts. Purgative medicines and moderate diet were ordered, and continued from the 20th April until the 20th May, when the inflammatory action being subdued, the patient was ordered five minims liq. potassæ arsenitis ter die, with the food, which was continued till the 15th June. During this time the conjunctivæ became inflamed, and dizziness of sight was present, proving the action of arsenic on the system; the eruptive disease in a slight degree diminished, but still the patches of lepra remained very distinct. At this time the health and strength became so reduced as to render it absolutely necessary to give up the liq. potassæ arsenitis, and to employ tonics and steel with ammonia, which in ten days enabled the patient to walk about during the day, which she could not do before. In the beginning of this month, I gave her the capsules of tar, which she was afraid to attempt to swallow in the first instance. The capsule has been taken with ease twice a day until the present time; the eruption has disappeared; the general health and strength greatly improved; she assured me a few days ago she had not enjoyed such good health for a long time. No external application of tar was made in this case, and during the first stage, so great was the irritation at certain hours of the day, that neither gruel, decoction of poppies, or any other of the usual soothing remedies, could be borne; dusting the part over with flour and starch-powder, seemed to answer best. This is only the second case of lepra treated with tar by me. I think it clearly proves the power of this remedy over the disease.

Medical Gazette, Aug. 4, 1848, *p.* 218.

131.—*On the Use of Collodion in Skin Diseases.*—By Erasmus Wilson, Esq., F.R.S.—The diseases of the skin in which I have hitherto used the collodion with advantage are, chronic erythema of the face; intertrigo; chapped nipples and chapped hands; herpes

labialis, preputialis, and herpes zoster; lichen agrius; lupus non exedens and exedens; acne vulgaris; and several affections of the sebiparous organs. In chronic erythema of the face, its contracting power was most usefully evinced, as it was also in lupus non exedenns, and acne.

In a troublesome case of chapped hands and fingers, resulting from chronic lichen agrius, the collodion acted not merely as a protective covering, but also promoted the healing of the cracks more quickly than the remedies I have been in the habit of employing. In chapped nipples, it was even more efficient in its protective and curative action, and seemed, in the two instances in which I used it, to work a charm upon the painful skin. The gaping cracks were instantly drawn together and almost obliterated by the contracting power of the remedy, and were effectually shielded from the influence of moisture and the pressure of the gums of the infant, and all this, in consequence of the rapid evaporation of the ether, in an instant of time. In another point of view the remedy is invaluable as an application to chapped nipples—namely, as being in nowise injurious to the infant, from offering nothing which can be removed by the lips during the act of sucking, and in this particular, therefore, possessing a vast superiority over the various forms of ointments, astringent lotions, &c.

When properly applied, the collodion enters all the crevices of the lines of motion of the skin, and adheres so firmly as to require several washings for its removal. As it is usually prepared, it has the consistence of syrup, and in this state is best suited for those cases in which its adhesive properties are principally needed. Where, however, it is intended to be applied to the surface of an ulcer or abrasion, or to chaps of the skin, I find it convenient to dilute it with ether, and render it almost as limpid as water.

Lancet, Nov. 18, 1848, *p.* 553.

132. — *Use of Creasote in Erysipelas.* — [It is stated that Dr. Fahnestock of Pittsburgh, uses creasote in the treatment of erysipelas, with the best results.]

In every case of local erysipelas he immediately applies the purest creasote, with a camel's hair brush, over the whole of the affected surface, extending it some distance beyond the inflamed part, and at the same time administering a dose of calomel followed by a sufficient portion of jalap to ensure free catharsis. This, in the majority of cases, is all he finds necessary. But when the mucous membrane of the mouth and the fauces is also affected, he pencils those parts with a solution of the nitras argenti, say from half a drachm to a drachm in an ounce of distilled water.

In the phlegmonous form, it will be found necessary to repeat the application more frequently than in the simple, with the addition of a bread and water poultice, applied nearly cold, and well sprinkled with water strongly impregnated with the creasote, or a cloth, kept constantly wet with the solution, especially for the face,

The creasote when applied, should cause the parts to become white immediately; if this does not occur it is not pure. Thus you will perceive that success depends upon having the best quality of oil. It is worthy of remark, that the skin does not become in the least marked by the application, no matter how often it is applied.

Provincial Medical and Surgical Journal, Oct. 4, 1848, p. 555.

133.—*On Protection from Burns by Fire.*—By —— Crompton, Esq.—Mr. Crompton, of Manchester, brought before the meeting of the Provincial Association, a discovery of Dr. Smith for rendering articles of clothing, &c., insusceptible of taking fire. He stated that all that was necessary was to immerse the article to be protected into a solution, the nature of which had not yet been made known to him. Specimens of lace, printed muslin, paper, hay, wood and other combustible materials so prepared, were exposed to the action of flame. They were severally charred, but neither took fire, nor was their texture destroyed. Specimens of the same articles which had not immersed in the solution were at the same time submitted to comparative trial, taking fire readily. The appearance of the several articles was in nowise altered by the action of the solution.

Provincial Medical and Surgical Journal, Aug. 23, 1848, p. 478.

134.—CASES OF NÆVUS TREATED BY THE SETON, IN THE PRACTICE OF DR. BELLINGHAM.

[The first case reported is that of a child eleven months old, with two nævi on the face:]

The larger nævus occupies the root of the nose and the inner angle of the left eye; it is about the size of the section of a walnut, is very prominent, the surface uneven, and of a purple violet color. On pressure it gives to the finger the sensation of squeezing a sponge, and shrinks and becomes pale. On removing the pressure, it very soon regains its former size and color; it becomes more prominent and of a deeper color when the child cries. The smaller nævus is seated on the forehead, has an oval shape, is very slightly elevated, is smooth on the surface, and of a pink color.

The parent of the child states that at birth the larger nævus was about the size of half the nail of her little finger, had a pink color, and was not elevated, it has gradually increased in size, and of late this increase has been more rapid. The smaller nævus at the birth of the child was not larger than the head of a small pin, and resembled a flea-bite.

April 13th. A needle armed with silk, such as is used for the ligature of arteries, was passed through the base of the large nævus in four different places, and a double thread left in each

which were sufficiently long to be loosely tied and to permit of their being moved backwards and forwards.

15th. The child has been very quiet since the operation, feeds well, and its health does not seem to be at all affected; the tumour is evidently larger, and of a deeper color; the threads have been moved backwards and forwards.

16th. Suppuration is now established in the line of the setons, and a good deal of matter has escaped.

23rd. The tumor is slightly diminished, and healthy pus is discharged at the orifices of the setons; the child's health is very good.

27th. The tumor remains stationary; the setons are discharging freely. Three more double threads of silk were passed through the base of the tumor to-day.

May 11th. Some of the threads have been withdrawn inadvertently by the child's parent in removing the pus which had collected about the orifices, and some blood escaped at one point; two more threads were passed through the base of the tumor to-day, previously dipped in a ten-grain solution of nitrate of silver.

June 4th. But little of the tumor now remains; at one point in the centre where several ligatures met, there is some loss of substance. The patient was allowed to return home; she was seen a year afterwards, the disease was perfectly cured, and the cicatrix was scarcely perceptible.

[After relating another case in which the same treatment was successfully employed, the writer says,]

Velpeau describes three forms of nævus: one he terms the arterial; and a second the venous, as the arterial or the venous system predominates; to a third he gives the name mixed, the tissue appearing to be made up equally of both kinds of vessels. Dr. Marshall Hall classifies nævi according as they have their seat in the minute arteries, in the true capillaries, and in the minute veins. In this country they are usually distinguished into the cutaneous, the subcutaneous, and the pulsatile; to the latter the term aneurism by anastomosis is often given,

The *cutaneous nævus* is generally a mere superficial congenital mark, which remains during life, and never requires surgical interference; writers upon cutaneous diseases have, however, taken the trouble of inventing distinct names for some of the varieties, as the nævus araneus, nævus cerasus, &c., from their supposed resemblance to these well known objects.

The *subcutaneous form of nævus* in its very early stage has some resemblance to the former; it generally, however, soon begins to enlarge, becomes more prominent upon the surface, and acquires a deeper shade of color, and if seated upon the head or face, increases in size when the child cries; pressure diminishes its bulk, but on the removal of the pressure it quickly regains its former appearance; to the feel it is soft and doughy; if an incision be made in it, or if the surface ulcerates, it bleeds freely.

The *third form of nævus* differs from that last described in having a pulsation synchronous with that of the arteries, and is usually termed aneurism by anastomosis from this circumstance, though it differs from aneurism in every other respect.

Some difference of opinion exists among pathologists as to the nature of the structure of which nævi are composed, particularly the subcutaneous and the pulsatile forms. Dupuytren supposed it to be analogous to erectile tissue. Bell was of opinion that they were made up of a congeries of cells, into each of which an artery and vein opens. Other pathologists regard their structure as analogous to that of the placenta. A preparation, in the museum of the Royal College of Surgeons in Ireland, illustrates their minute structure remarkably well, and shews that they consist of cellular tissue and of vessels, the latter being principally veins, of different sizes, exceedingly tortuous, dilated at some points and contracted at others, but arranged in no regular manner.

The subcutaneous and pulsatile forms of nævus, like the cutaneous, seem to be always congenital, though they may be so minute at birth as to escape observation. Their progress does not appear to be subject to any fixed laws; they will sometimes remain stationary for years, and then suddenly enlarge and extend; while sometimes, from the first, they increase gradually in size. They are often solitary, but in many instances more than one will be found, and while one remains quiescent the other will enlarge. The face and head appear to be their favorite site; when seated near a mucous canal they frequently extend into it, and they are often seen upon the inside of the lips and cheeks owing to this cause. In one of the foregoing cases the disease extended to the mucous membrane of the nostril, and caused considerable impediment to respiration.

In the foregoing cases, the treatment by seton was adopted. The advantages of this mode of treating nævus were first pointed out by Dr. Marshall Hall. This method of treatment is necessarily somewhat tedious, as it is requisite that the adhesive inflammation should be set up, and that a deposit of lymph should take place in the part. But to be successful, it only requires, in Dr. M. Hall's words, "to be done efficiently; to be repeated often enough; and to be followed by sufficient delay, for processes, necessarily slow, to be established and completed."

Dublin Medical Press, Aug. 16, 1848, *p.* 97.

135.—*Treatment of Erectile Tumors.*—M. Behrend, of Berlin, treats these tumors by the application of the concentrated acetic acid, followed by lint dipped in distilled vinegar. Under this treatment the tissue becomes pale and hard, diminishes in bulk, and is at length completely thrown off. He also, in some cases, enjoins the repeated division of the dilated vessels, by puncturing them with a needle with double-cutting edges.

Dublin Medical Press, Aug. 16, 1848, *p.* 105.

136.—ON THE CAUSES AND TREATMENT OF ULCERS OF THE LOWER EXTREMITY.

By George Critchett, Esq., Assistant Surgeon to the London Hospital, &c.

[Impediment to the return of blood from the lower extremities is, it is well known, one of the most frequent causes of ulcers in those parts, as well as a serious barrier to their successful treatment. Mr. Critchett dwells at some length upon this subject; and after detailing the causes which lead to a dilated state of the veins, he observes, that from whatever cause this condition springs, it may terminate in five different ways:—]

First. It may produce hypertrophy of the coats of the veins, and thus resists further distension.

Secondly. The principal veins may become plugged up more or less completely with fibrine, and thus by diverting the current of blood into other channels, the disease may become stationary.

Thirdly. The capillaries of the skin and subcutaneous cellular tissue may become likewise dilated, giving rise to permanent discoloration of a large portion of the skin, and to thickening and firm fibrinous deposit beneath it, and thus the disease in the larger trunks would seem to be checked, if not arrested.

Fourthly. The larger veins may become more and more enlarged and elongated; the smaller trunks may become gradually implicated, until what I have denominated the spongy leg is produced; this condition sometimes relieves itself by hemorrhage.

Fifthly. In this spongy condition of leg a congeries of red vessels may form, in the centre of which a white patch appears on the skin, which is the immediate forerunner and indicator of ulceration, which being established is another way in which the congested veins are temporarily relieved.

[Mr. Critchett next refers to some of the other predisposing causes of ulcers, plethora, anæmia, scrofula, secondary syphilis, low fevers, and suppression of the menses. He then proceeds to make a practical classification of ulcers.]

I propose, he says, in the first place to divide all ulcers into simple or local, and specific or constitutional.

I again divide the simple or local into acute or spreading, subacute, chronic, healthy, irritable, and varicose; the specific or constitutional I arrange under the various heads of strumous, syphilitic, phagedænic, periosteal, menstrual, œdematous, and malignant.

In considering the principles upon which the treatment of ulcers of the lower extremity is to be conducted, I must again remind you, "that the reason why ulcers are more frequently found in the lower extremity than in any other part of the body, and are more difficult to heal, and more liable to recur in this situation, is on account of the weight of the superincumbent column of blood weak-

ening the vessels and impeding the circulation through the part. The truth of this will, I imagine, be admitted by all surgeons, though it has not, I think, been sufficiently clearly and forcibly insisted upon by writers on this subject. If this be so, it follows as a necessary consequence, that the chief aim and object, independent of any specific treatment that the case may require, is to place the circulation of the lower limb on a par with the rest of the body: this object once accomplished, there is no reason why ulcers so situated should not heal as readily and as quickly as in any other part of the body, and such is, indeed, found to be the fact.

[This may be accomplished by a sufficiently long continuance in the recumbent position: but this plan of treatment has its inconveniences both to the surgeon and the patient.]

Is there, then, no other way besides rest in which the circulation in the lower extremity can be brought to a par with the rest of the body? I reply, with a confidence based upon personal extensive experience, and upon extensive observation of the same practice in other hands, that there is a plan more rapid, more certain, and far more lasting, and more applicable to a large majority of these cases, than rest; and that is, "uniform and complete support to the entire limb, which, I maintain, cannot be obtained by the ordinary bandage, however skilfully applied, but is only to be efficiently accomplished by a proper application of strapping, so as completely to envelope the limb from the toes to the knee."

Lancet, Oct. 7, 1848, p. 397.

[Mr. Critchett now refers to the plan of treatment commonly termed "Baynton's method". Though Mr. Baynton was the first to recommend the use of adhesive strips in the treatment of ulcers, yet the true exposition of the principles upon which alone they can be successfully used, was given, Mr. Critchett says, by Mr. Scott in his work on diseased joints. The following, Mr. Critchett tells us is the proper mode of application.]

You take the centre of the first piece, and apply it low down to the back of the heel, and then, with the flat part of both hands, press the plaster along both sides of the foot. This plan is very preferable to taking hold of the ends, and endeavouring to apply them, as it ensures a perfectly smooth adaptation of the plaster to the part, and also because it enables you to regulate the amount of tightness, which is a very important point. As you proceed with the remainder, you must always remember the principle is to make one portion hold on another; you must therefore alternate them round the foot and ankle. Your second piece should be placed in a similar manner underneath the heel, and then carried upwards, at a right angle to the last, so as to cover a portion of each malleolus. The third piece should be again applied to the back of the heel, overlapping the first by about one-third. The fourth piece under

the foot, and carried upwards, each piece being pushed along, so as to allow it to take its own course; this must be continued until the foot and ankle are covered; the strips must then be carried in a similar manner up the leg, increasing in length as the calf increases, and extending as far as the knee, and in some cases even above this. A calico bandage, about three inches in width and eight yards in length, varying, however, according to the size of the limb, must now be applied, to keep the plaster in its place, and the limb is supported in the most complete and efficient manner that human ingenuity has yet devised. None but those who have practically tested the matter can estimate the immense difference between mechanical support so obtained, and the most accurate bandage that was ever applied; it is, in fact, far greater than mere reasoning upon the subject would lead you to expect: and whilst it accomplishes all that rest can do for the ulcer, in many cases it does a great deal more, enabling the patient to pursue his ordinary avocations, and at the same time healing the wound more rapidly, and far more lastingly, than the most complete rest would effect. In carrying out this method, we must remember that we have two objects to accomplish: the one is, to obtain a healthy circulation through the entire limb, and the other, to act upon the dilated capillaries immediately surrounding the wound. Both these objects are frequently accomplished by the general support I have just described; but it sometimes happens, particularly in small ulcers situated in the hollow between the malleolus and the os calcis, that the diseased vessels immediately around the wound require an amount of pressure which the rest of the limb would not bear. Under these circumstances very great advantage is derived from applying, previous to the support I have just described. some pieces of strapping, about six inches in length and two inches in width, in a crucial manner, over the wound, so as to extend a few inches above and below it; these pieces. as they do not encircle the limb, may be applied with all the force and tightness the surgeon can exert. If this plan be superadded to the other in certain cases, it is of great assistance to the surgeon, enabling him to combine considerable local pressure upon the weakened and distended vessels immediately surrounding the sore, with gentle mechanical support to the entire limb. But it may be asked, is this complete support of the entire limb always necessary? I answer, certainly not. When the limb is in an otherwise healthy state, the congestion confined to the circumference of the ulcer, and the ulcer is situated tolerably high up in the limb, short strips applied so as to cover a few inches above and below the wound, will answer every purpose, but it is of the utmost importance that these pieces should not surround the entire limb, for reasons that I have before insisted upon; and I would lay it down as a rule without exception, that in every case in which it is necessary to apply strapping entirely round a limb, it must never be partially applied, but must encompass and support every part of the leg.

Lancet, Oct. 14, 1848, *p.* 417.

[After describing what he terms the "acute" ulcer, which is to be treated not, of course, by pressure, but by soothing applications, such as poultices and water dressings,—and then of the "subacute" ulcer, Mr. Critchett says,]

If the surface of the sore looks glassy and irritable, an improvement is often obtained by a weak solution of the nitrate of silver, or of nitric acid, or a light sprinkling of the red precipitate powder. After a certain time the sore presents a more defined edge, and a more healthy appearance; some granulations show themselves; the discharge becomes rather thicker, and the surrounding parts, instead of being a bright red, assume a much deeper shade; the pain, tenderness, and heat are also much diminished. Your patient now naturally desires to be released from his confinement, and it is, I conceive, the duty of every surgeon not to keep a patient in the recumbent position a single day longer than is necessary for accomplishing a cure. Every consideration induces this conclusion; the patient's health improves under the influence of air and exercise; the daily avocations of life are no longer neglected; and a cure obtained under these circumstances, if not in all cases so speedy, is certainly far more likely to be permanent. Now, then, is the moment for commencing more effectual mechanical support by means of strapping; and most important it is to select the right time. If it be attempted too soon, it will bring back all the symptoms of acute inflammation, and if persevered in, may produce serious mischief; and the want of proper discrimination in the use of this, as of every other valuable remedy, may bring it into unmerited discredit.

When you first begin to strap a case of this kind, if the ulcer is situated high up in the leg, if the surrounding redness is not extensive, and if the general circulation through the limbs is tolerably healthy, the short strips, applied as I directed in my last lecture, and not allowed to surround more than half the circumference of the limb, will sometimes be sufficient. The entire foot and leg must then be enveloped in a bandage, which may be moistened over the sore with cold water. If, however, there is not a speedy and marked improvement in the aspect of the sore after two or three dressings, and yet the case is clearly one requiring mechanical support, you must at once apply strapping to the entire limb, in the way I have before recommended; and if this is done carefully, and with very gentle uniform pressure, a marked improvement will speedily follow. It has frequently happened, that in treating a case of this kind I have commenced with the short strips, hoping to save trouble and plaster; but I have afterwards been compelled to adopt the more complete method, and have found that I thereby in the end, saved both. Whenever the limb is swelled and puffy, the circulation through it feeble, and the parts surrounding the wound are extensively involved, as is shown by the discoloured and dilated condition of the capillary vessels, and by the subcutaneous deposit, the short strips alone are sure to fail, and the limb must be completely supported and enveloped in strapping—still continuing the

cold water, if it afford relief. The indication is, in commencing strapping, to apply it very gently, and sometimes even loosely, for the very contact of the plaster, without any apparent circular tightness, appears to give very marked support to such a case. If all progresses favourably, you will find, when next your patient presents himself, that the strapping you applied has become still looser, owing to the swelling having diminished. The surrounding redness is now of a deeper shade, or even of a bluish colour, and the discharge is somewhat thicker. I should strongly recommend every surgeon to remove the dressings himself, as the state of the strapping and the nature of the discharge are valuable guides to him in determining the progress he is making, and the proper tightness with which to apply the next dressing; for this, as I have before said, is one of the most important elements in the success of this method of treatment. I may add, that I have found the feelings of the patient another most useful guide in determining this point. If the swelling is much diminished, and the colour of the surrounding capillary vessels of a deeper shade, and refill more slowly when emptied by pressure, you may venture to apply the strapping more tightly, and to discontinue the cold water, and you may then promise yourself a speedy and satisfactory cure. If, on the other hand, the pain has been increased by your application, the patient complains that it has felt tight and uneasy, and the discharge is thin, you must apply it again more loosely. If still there is no improvement, it is better at once to give it up, and to return to your soothing plan, and rest; either it has been used prematurely, or too tightly and in either case it is useless to persevere. I have never met with an instance in which, if the first two or three dressings were not beneficial, it was possible to recover lost ground, and obtain a healthy action, without an entirely fresh start, after the limb has been brought into a favourable condition by rest and other suitable treatment.

I have now to consider the chronic form of ulcer, a condition in which it much more commonly comes before your notice, in consequence of the very inefficient methods of treatment usually adopted. In speaking of chronic ulcers, I shall at present confine myself to those that are simple and free from any decided constitutional peculiarity. They differ in a remarkable manner in the amount of pain they occasion; in some, the pain is aggravated by moving about, in others, by rest. Night is sometimes the period of the most severe suffering, particularly in those cases that are complicated with varicose veins; and again, I have met with some few cases of many years' standing in which the patient seemed scarcely to suffer. There is no heat; the surrounding parts are of a blue or of a brownish colour, this discolouration sometimes involving a considerable part of the leg; and it is a singular circumstance that this dark brown stain never disappears, even though the limb in other respects may have become perfectly healthy, this probably depends upon some permanent change in the capillaries of the skin, There is often a considerable amount of firm, inelastic thickening

and deposit around the wound, varying in extent according to the length of time the disease has existed, giving to the sore an appearance of considerable depth; the sore itself presents a flat, even surface, without any signs of granulations, but covered by ill-formed lymph; the discharge is thin, varies in quantity, usually being slight. Ulcers may exist in this condition for an almost indefinite period, varying slightly at times from accidental, local, or constitutional causes, but maintaining nearly the same size and appearance for many years. I have met with cases of this kind that, according to the patient's own account, have never varied materially for five-and-twenty years.

Lancet, Oct. 28, 1848, *p.* 469.

[Mr. Critchett next makes some remarks on the treatment of *chronic* ulcers. He observes that when the surface of the ulcer is foul and unhealthy, it is desirable to begin the treatment by a few days' rest, before proceeding to other measures. He says.]

In cases where rest can be thus obtained, and where the ulcer is indolent, and at the same time foul and unhealthy, the red precipitate powder is very useful in producing a new and more healthy surface; it should be sprinkled on rather thickly, and allowed to come off spontaneously in a congealed cake or mass; one application is usually sufficient. The principal objection to it is, that it often occasions severe pain for many hours. In making anything like an estimate of the facility, rapidity, and certainty of your success in curing these cases by the method I am about to detail, a most important element to be considered is the situation of the sore; if it be placed about the middle or above the middle of the leg, and the surrounding parts are of a bluish color, and not very readily emptied by pressure, all that is required is a tolerably tight, complete, and uniform application of strapping to the entire limb, and the sore will rapidly heal. In such a case a mere tyro will generally be successful; but if, as is very often the case, the ulcer is situated over either malleolus, or in the space between the malleolus and the heel, the mechanical management becomes far more difficult, and the cure more tedious, and, in inexperienced hands, often impossible. The great difficulty arises from the fact that the parts immediately surrounding the sore require a much greater amount of pressure than the rest of the limb will bear. In order to accomplish this, it is better to commence with the application of the short strips of plaster I have already described, putting the first piece some inches below the wound, and covering all that part that is discolored and indurated; these short strips should be drawn as tightly as it is possible to pull them; after this the limb must be completely supported, and in doing this, those strips which are applied over the foot and by the side of the ankle must be drawn tightly; but when you begin to encircle the small part of the leg it must be done with less force. The perfect power of thus moderating pressure in different parts of the limb, and also of forming a correct estimate of the amount of tightness each particular case requires, shows the master

of this branch of mechanical surgery, and is only acquired after some considerable attention and practice. It is one of the very great advantages also that strapping possesses over any kind of bandage, in thus enabling you to modify the amount of tightness in different parts of the leg, whereas a bandage can only be applied with the same amount of force throughout; and practically it is found often to become loose where pressure is most needed, and to get tight around the small part of the leg, where it is injurious.

If, then, you carefully apply the strapping in the way I have directed, and regulate the tightness by the rules I have laid down, you will almost invariably find, when your patient again presents himself at the end of two or three days, that the strapping you applied tightly has become loose; this is not because it has in the slightest degree given way, but because the swelling and intercellular deposit has been to a certain extent removed by the effect of the pressure: this is a very favorable sign. The strapping must now be reapplied as tightly as before, and in two or three dressings, the wound will assume a healthy aspect, and the discharge will become thicker and more creamy. In cases where there is a considerable amount of thickening and induration, it often happens that the ulcer will not commence healing until all this has been removed by the pressure; it is necessary to renew the application more or less frequently, according to the size of the wound and the nature of the discharge. If the wound is large, it is better to dress it at first every day; whenever, also, the discharge continues thin, it is necessary to change it frequently, but as it gets thick, every third day is sufficient; and there is a class of cases sometimes met with in which the discharge is very thick and tenacious, and clings to the sponge, in which the wound heals rapidly, and the strapping may be allowed to remain on a week. I should say, as a general rule, that twice a week is sufficiently often for the majority of cases. If you steadily pursue the plan I have now detailed, it matters not how considerable the deposit may be, nor how long the ulcer may have existed, (I could almost say, from my own experience, the longer the better).

You will almost invariably succeed, not only in healing the sore, which is, after all, but half a cure, but also in getting rid of all thickening and enlargement, and restoring the limb to its natural shape, and the vessels to a comparatively healthy condition, bringing out the malleoli into "relief" as artists say, which may have long laid buried beneath a mass of morbid deposit.

[Local stimulants are not needed, Mr. Critchett thinks, in a simple chronic ulcer. If, however, the sore is irritable or indolent, he would use some such application, leaving the choice of the application to the discretion of the practitioner and the feelings of the patient.]

Lancet, Nov. 18, 1848, *p.* 546.

137.—ON THE PREVENTION AND TREATMENT OF BEDSORES.

By Dr. M. C. Bernard.

When the first blush of unhealthy inflammation makes its appearance (which is indicated by a livid colour in the integuments) we should take care that all pressure from the parts be immediately removed. This can be done either by the patient's position being changed, or by the aid of bolsters or air-cushions; and if the case is one likely to be protracted, the hydrostatic bed of Arnott should be at once procured. The simple plan recommended by M. Purefoi (as lately described in the *Gazette Médicale*) is well worthy of the attention of the profession. He uses a cow's bladder, softened in warm water, this being oiled and partially inflated, is placed under the part suffering from continued pressure. The effect of this support (in a case of fractured leg) exceeded his expectations. He says, "From the moment the patient experienced the change, he cried out that he was in heaven, and to the end of the cure of the fracture he felt no more pain, nor was the bladder changed but once during the month this was effecting. Another patient, who had gangrene from infiltration of urine, had to rest almost entirely on the sacrum for two months, and was saved any pain or ulcerations of the part by having placed under it a bladder, prepared as above, and wrapped in a towel." What renders this contrivance valuable is its simplicity and cheapness; it forms a very manageable substitute for the hydrostatic bed of Arnott, and will, I am convinced, add more to the comfort of our patients than a more costly article.

In addition to these preventatives, others to stimulate the surface and excite the dormant capillaries to more healthy action, should be diligently used. The lotion recommended by Sir B. Brodie is admirable for this purpose. It consists of two grains of bichloride of mercury to an ounce of proof spirit. These two contrivances, if used at the same time, will be found invaluable in the prevention of bed-sores. The lotion of Sir B. Brodie, by its stimulating properties, will serve to thicken the cuticle and render it more efficient to resist injury; whilst the inflated bladder of M. Purefoi, by its softness and elasticity, will preserve an uniform pressure on the surrounding parts, and allow the free circulation of blood through the capillaries at the surface of the body.

[If, in spite of our efforts, sloughing takes place, we may divide the progress of the case, for practical purposes, into three parts. The first is the period before the slough is detached, during which we must employ stimulating applications, as a carrot poultice morning and evening, sprinkled with a solution of chloride of soda. Pressure must also, of course, be prevented. In the second stage,]

When the slough falls out, a deep unhealthy looking ulcer is presented to our notice, forming the second stage of these sores. This ulcer is generally round or oval. The integuments at the circumference are undermined, so that you can readily pass a spatula

beneath them, shewing that the subjacent cellular tissue had lost its vitality even to a greater extent than the cuticle. The margin of the ulcer is consequently found to overlap its base. The base presents a flabby, uneven surface without granulations, and interspersed with shreds of adherent slough. From this surface a thin sero-sanguineous or ichorous discharge is secreted, having a most fœtid odour. In order to promote healthy granulation, and stimulate the parts to cast off the remaining shreds of slough, warm dressings, consisting either of equal parts of gum elemi and spirits of turpentine, or of castor oil and Peruvian balsam, may be applied, dipped in lint, to the bottom of the ulcer, and a linseed meal poultice, spongio-piline, or a carrot poultice, placed over them. After a few days, the ulcer will assume a more florid appearance, and show a disposition to form granulations. It will now be necessary to make a change in the dressings. At this particular stage we will hear of many vaunted remedies and old woman's cures spoken of as specifics, consisting of ointments that take twenty days to make, lotions and poultices innumerable. Suffice it to say, that the simple means I have used at this stage have answered all my expectations, and have added more to my patient's comfort than all the greasy applications which are recommended for the same purpose. It consists in applying every morning with a camel's-hair brush a solution of nitrate of silver (ten grains to an ounce of distilled water) to the flabby granulations, then covering the surface of the ulcer, and filling it up with fine carded cotton. A piece of oiled silk, large enough to cover both hips and sacrum, should then be placed over the dressings. The oil silk thus applied serves a double purpose; it will, by preventing the evaporation of the discharge, keep the cotton soft, snd permit its easy removal at each dressing; it will also add to the cleanliness and comfort of our patient, by preventing the bedclothes being soiled. Under this simple treatment, the surface of the ulcer soon begins to assume a more healthy appearance, the granulations at the margin become amalgamated with those at the base, until the cavity is filled up by luxuriant granulations.

We have now the third stage of these bed-sores to treat. As in the second stage, our object was to stimulate the surface to healthy action, in this we have to control inordinate action and repress luxuriant granulations. A concentrated solution of sulphate of copper (applied every morning) will be found most useful for this purpose. The carded cotton and oil silk, as above recommended, may be also continued until the ulcer is perfectly healed.

Dublin Medical Press, May 10, 1848, *p.* 293.

138.—*Case of Operation for a Contraction from Burn.*—By J. Grantham, Esq., Crayford.—[In this case, in which there was extensive contraction of the integuments on the front and side of the neck, Mr. Grantham divided the cicatrix thoroughly. And afterwards,]

The treatment consisted in the application of folds of lint dipped

into hot water, and secured by a roller passed round the throat, over the head, and under each axilla, at the same time securing a layer of wool wadding over the wound so as to maintain a temperature of the wound equal to the temperature of the adjacent integuments. This dressing was continued, varied only occasionally with zinc ointment, for upwards of two years, a period no doubt seeming long to those who may not have experienced the great difficulty of healing such wounds as have the derma imperfect. As is my usual practice, where there is much purulent discharge, I endeavoured to support the patient on a milk diet, the utility of which practice has been attested in the cure of the most extensive burn ever published in the annals of surgery;—in which case is also proved the necessity for maintaining an equilibrium of animal heat with a firm and even pressure on the granulating surfaces, believing, as I do, that these two principles are the chief essentials, as external agents, in the healing process of wounds generally. I wish this remark to be understood as only applicable after the reaction of the part has taken place, and all dead portions removed by exfoliation.

The treatment of this case is an example of the great advantage of maintaining equal pressure with equal temperature during the healing process.

Medical Gazette, June 9, 1848, *p.* 990.

139.—*Case of Contraction from Burn, cured by Division of the Cicatrices.*—By James Whitehead, Esq., Manchester.—[Mr. Whitehead brings forward this case as an example of the good effects (apparently permanent, for the case remains in a satisfactory state at the end of four years) of *careful division of the contractile tissue of the cicatrix.* The following are the circumstances:—A girl of eight years old was severely burnt by the ignition of her clothes, in the year 1830. In 1831, when the parts had been for some months cicatrized, it was found that]

The right fore-arm was immoveably contracted upon the arm to the degree of an acute angle, in which posture it was maintained by a web of cicatrix extending between the distal extremities of the two portions of the limb, and occupying of course the whole intermediate space. The corresponding limb was similarly fixed, the displacement, being, however, less considerable. The skin of the neck was also deeply furrowed, and the head distorted.

[The cicatrices on the arms were removed, and the limbs maintained in the extended position on splints, with a thick cord tied round each elbow, and at the end of twenty-one weeks the cure was nearly completed. But at this time the use of the splints was relaxed, contrary to the injunctions of the surgeon, and the contractions returned to as great an extent as previously. In May, 1844, the patient, then twenty-two years of age, came again under the notice of Mr. Whitehead. At this time the head was dragged down to the right side, and the right arm rendered almost useless. Mr. Whitehead says,]

The fibrous band subtending the angle at the elbow-joint, was equal in thickness to, and tangibly as firm as, the tendo Achillis. The first operation was performed upon the neck, the incision commencing below the ear, the lower part of which organ was merged in the folds of the cicatrix; it was thence continued below the line of the jaw to a point opposite the middle of the chin. Division of the skin simply appeared to afford no relief whatever to the distortion, there being immediately beneath numbers of bands of a bright fibrous aspect, which effectually prevented the parts from resuming their natural position. These being successively divided with the bistoury upon a grooved probe, and the head raised, other sets presented themselves to view, which, when extended, still produced a tractive effect upon the cicatrix below. Bundle after bundle was in turn dragged forward and divided, from one extremity of the wound to the other, until caution suggested a cessation. The wound, which appeared dreadfully large, was cleansed and covered with simple dressing; it was quite healed in four weeks.

The relief afforded by the above operation encouraged confident hopes of a successful issue from a like procedure upon the arm; this was accordingly practised on the 8th of June, 1844. The bistoury was plunged through the structure at the angle of flexure, as close upon the joint as safety to the neighbouring parts would admit, and thence carried forwards, emerging at the free edge. But this incision, which might, *a priori*, have been looked upon as all that was necessary, constituted comparatively but a small share of the operation. The divided parts immediately retracted considerably: but when extension was attempted, even but to a limited degree, a number of shining fibrous bands started forwards completely hindering further movement. These were also divided and extension again attempted, when others of similar character were brought into view, occupying an elevated position in front of the joint, and opposing like resistance. In this manner successive groups of fibres had to be separated, layer after layer, before the limb could be brought into a straight line, which was not accomplished until all the deep-seated bands reaching across the joint on each side of the large vessels, and outwards towards the condyles, has been completely divided, including of course the fascial insertion of the biceps muscle. During the operation the median basilic vein was accidentally wounded; this, it was found necessary to ligature on each side of the puncture, before further steps could be taken.

The wound, which measured eight or nine inches in the long direction, and upwards of four inches transversely, was cleansed and covered with simple dressing and a bandage. A splint was applied to the back part of the limb on the fourth day, but this appeared unnecessary, as there was no difficulty in easily maintaining an extended position; the apparatus was altogether abandoned at the end of three weeks, and never afterwards required. The wound was completely cicatrized in six weeks.

About three months afterwards I divided, in a similar manner,

the cicatrices bounding the axilla, on the same side of the body, with nearly equal success.

The successful issue of the operation was undoubtedly attributable, mainly, to the *perfect* division of *all* the fascial fibres traversing the elbow-joint anteriorly from the arm to the fore-arm, or at least *all* that could be exposed with safety.

It is not a little remarkable that the elbow-joint which had been almost totally unused for twelve years, appeared in no way injured, as no pain was complained of, nor difficulty experienced, in the attempts that were made to move it. The limb is now plump and well shaped, and apparently as strong and useful as though it had not been materially injured.

Provincial Medical and Surgical Journal, Aug. 9, 1848, *p.* 421.

AFFECTIONS OF THE EYE AND EAR.

140.—A NEW MODE OF TREATING CERTAIN CASES OF DEAFNESS

By J. Yearsley, Esq., Surgeon to the Metropolitan Ear Institution.

[Mr. Yearsley observes that hitherto there has been no successful mode of treating the deafness arising from perforation of the membrana tympani. The process of syringing out pus or mucus from the tympanal cavity, by passing air through the perforation by way of the Eustachian tube, will often indeed produce a temporary improvement; but in many cases it is of little or no service. Mr. Y. makes known, however, the following simple method of treating these cases. He says,—]

In 1841, a gentlemen came from New York, to consult me under the following circumstances:—He had been deaf from an early age, and on examination, I found great disorganization of the drum of each ear. On my remarking this to him, he replied, "How is it, then, that, by the most simple means, I can produce on the left side a degree of hearing quite sufficient for all ordinary purposes; in fact, so satisfied am I with the improved hearing which I can myself produce, that I only desire your assistance on behalf of the other ear." Struck by his remark, I again made a careful examination of each ear, and observing their respective conditions, I begged him to show me what he did to that ear, which I should unhesitatingly have pronounced beyond the reach of remedial art. I was at once initiated into the mystery, which consisted of the insertion of a spill of paper, previously moistened at its extremity with saliva, which he introduced to the bottom of the meatus, the effect of which, he said, was "to open the ear to a great increase of hearing." This improvement would sometimes continue an hour, a day, or even a week, without requiring a repetition of the

manipulation. Such an interesting fact could not fail to excite my attention, and it naturally occurred to me to try so simple a method in other cases. I did so in several which appeared to me to be indentical with that of my patient, but I invariably failed. I was on the point of abandoning the idea that the remedy could ever be made available in practice, and of considering either that my American patient's case was unlike all others, or that it depended on some idiosyncrasy, when it happened that a young lady came under my care, by the recommendation of Mr. Squibb, surgeon, of Orchard-street. She was the daughter of wealthy parents, whose anxiety for her relief was so great as to induce them to bring her to me long after I had discouraged their visits, and openly expressed my inability to relieve her. She had become deaf at a very early age, after scarlatina, which had produced disorganization of the drum of each ear, and the deafness was extreme. Unwilling, however, to abandon hope, her friends continued to bring her to me, in order, as they said, that "nothing might be left untried." With little expectation of success, after so many previous failures, I was induced to apply the new remedy, with some modifications upon my previous experiments. Instead of adopting my American patient's plan, it occurred to me to try the effect of a small pellet of moistened cotton wool, gently inserted and applied at the bottom of the meatus, so as to come in contact with the small portion of membrane which still remained. The result was astoundingly successful. On the evening of a day in which she had risen from her bed with the sad reflection that she must be for ever debarred from social converse and enjoyment, she joined the family dinner-party, and heard the conversation which was going on around her with a facility that appeared to all present quite miraculous. Day after day, the remedy was applied with the same marked success, and eventually she learned the art of applying it herself, and thus became independent of me. It was observed that, until the wool could be brought in contact with a particular spot at the bottom of the meatus, the hearing was not at all benefited, on the contrary, was prejudiced; but the moment it was properly adjusted on that particular spot, the hearing was restored. Subsequent experience, in a vast number of cases, confirms this remarkable fact. It is not merely necessary to insert moistened cotton wool to the bottom of the meatus. Such a manipulation would in most cases add to the deafness. It is essential to find the spot on which to place the wool, and so adjust it as to produce the best degree of hearing of which the case may happen to be susceptible. This of course differs according to the variety and extent of the disorganization.

I quote the above case, not only because it was the first which it was my happiness to relieve by this novel plan, but because I am in a position to show the permanency of the remedy; for recently I have made it my business to write to the mother of the young lady, who states that her daugher "continues to derive the same benefit as ever from the remedy, and that in her case it has been most successful, restoring her to the charms of society, from

which she had been almost entirely excluded. It is now scarcely necessary for the members of her family to raise their voices when addressing her." She adds: "When the aid is removed she scarcely hears at all."

For nearly five years this young lady has used the remedy with undiminished success, and during the same period I have been availing myself of it in the ordinary routine of my practice, stepping neither to the right nor to the left to seek for cases in which it would be applicable, nor ever speaking of its extraordinary success out of the circle of my immediate medical acquaintance. And most probably I should have continued so to do, if it had not happened that a gentleman, an army surgeon, recently consulted me, who having experienced the most happy result from the same mode of treatment, thought proper to publish some account of it in a local newspaper, considering, as he stated, that so important a mode of treatment ought to be more extensively known.

Mr. Griffiths, of Pantgwyn, Newcastle, Emlyn, Carmarthenshire, the gentleman in question, (I am at liberty to use his name,) did me the honour to call on me in September of last year, accompanied by Sir David Davies, to consult me about a young friend labouring under an affection of the throat. During the consultation it was necessary for me to raise my voice very considerably to make myself heard by Mr. Griffiths, and I observed that when he blew his nose, he distinctly passed air through the tympanum. After the consultation, I alluded to his deafness, and the probability, that by a new remedy I could afford him some relief, more especially as he had unconsciously revealed to me, in blowing his nose, a state of ear favourable for success. He readily assented to a trial; and I must be permitted to quote his own statement of the result. On the remedy being applied, he says, "To my utter astonishment I heard every sound so loud, that I felt I had never known what it was to hear until that moment. Sir David Davies could hardly have believed it had he not been present. On entering the streets, the noise was so intense, that I was compelled to stop up my ears to deaden the sound; but after a time I became accustomed to it, and can now enjoy the pleasures of social converse without straining my auricular organs, or being obliged to be addressed in a considerable elevation of voice. Personally I continue to apply the remedy with the same beneficial effect, and am convinced of its permanent nature, when persevered in, and properly attended to. This extraordinary discovery comes too late to be of that essential service it would have been to me in earlier life, yet it may render the rest of my days more comfortable in my intercourse with the world."

The following brief history of Mr. Griffiths' case, as detailed by himself, is interesting in many points of view:—"The crisis of a severe attack of scarlatina in my infancy was attended by abcesses in both ears, which produced deafness, and a continual discharge of purulent matter, more or less, until I attained my twenty-second year, when the latter ceased. Occasionally concretions of wax formed in the passage, increasing the deafness. These were remo-

ved by syringing, after which a thin pellucid fluid would issue from the ears, during which my hearing was much improved, again becoming worse as the discharge ceased. While the discharge lasted, I experienced a slight tenderness in my ears, which also ceased with the discharge. I find that your remedy sometimes does the same thing, and that is my reason for not constantly using it; but if it is *not* applied my hearing is not in the least degree remedied! The discharge is always more profuse when in bed, even without the remedy, and I am somewhat puzzled to account for it. My children know as well as I do when the remedy is applied; and when it is, they remark, 'Your ears are too sharp; we cannot now speak to mamma, even in a whisper;' but they cannot, more than other people, discover why I should hear so well one day, and the next, perhaps, not better than usual; and the question now is, 'Have you got your new ears on to-day, papa?' The invention is invaluable."

From this communication, written three or four weeks after his visit to town, it appears that the remedy at first set up an irritation in the ear, which occasionally rendered it advisable that it should be discontinued; but now I am enabled to state that such obstacle to its use no longer exists, and that he applies it regularly, uninterruptedly, and with undiminished success.

This case, like the first quoted, proved to be one in which there was a loss of a great portion of the membrana tympani; and I may here observe, that all my experience tends to show that this is an essential condition of the ear for success. At the present time I can refer to not very far short of two hundred cases, in which the new treatment has been successful, and in all of which more or less perforation or destruction of the membrane exists.

A very small quantity of wool is sufficient. It must be moistened in some fluid without any compression, and gently pushed down the meatus with the point of a probe. I have had constructed for the purpose a set of instruments, which are calculated to meet and overcome every difficulty; for I need scarcely say that it is very easy to talk of passing a foreign body down the meatus, but it is not so easily done. Besides, it is not sufficient to merely pass it down to the site of the membrane; but when there, the spot must be found which it is indispensable the wool should occupy and cover: for then only, and not till then, will success attend the application, and the patient regain the hearing.

With a few rules, which, of course, vary with the case, the patient may be taught to manipulate upon himself, and all that is required is to remove the dry wool, and replace it with moist, night and morning, or morning only. This is quite sufficient to maintain the improved hearing in the intervals.

It will be expected that I should say something of the *modus operandi* of this new application; but I can offer nothing that is conclusive. It has appeared to me in some way or other to supply the place of the lost membrane. The moisture is absolutely necessary to its perfect action; for when the wool becomes perfectly dry

it impedes rather than improves the power of hearing. Is it possible that moist wool placed at the extremity of the meatus can transmit the vibrations of sound in the same manner as the natural membrane, or must we look for some other explanation? However, of its relieving this kind of deafness there can be no doubt.

Lancet, July 1, 1848, *p.* 10.

[Perforation of the membrana tympani, Mr. Yearsley observes, may be congenital, or it may arise from various causes; as from accumulation of matter in the tympanal cavity, from tympanitis, or from an extension of disease from the meatus; and may be caused also by accident, as by blows on the ear, or loud noises. He then goes on to say,]

With regard to the interesting question which has been so much debated—Can loss of the membrane be repaired? and to which the negative has commonly been given, one important distinction must be made as a preliminary to its consideration. We must distinguish between those cases in which from accidental causes, or the pressure of matter, the membrane has been merely perforated without loss of substance, and others in which from ulceration, the greater part of the membrane has been entirely destroyed.

In the first class of cases, I have no hesitation in declaring that nothing is more common than for the membrana tympani to cicatrize. Numbers of persons suffer in their childhood from suppuration in the tympanal cavity and the exit of matter through the membrane, in which in after-life no solution of continuity whatever can be discovered by the most searching examination, but in which there are evidences of cicatrization. In the accidental forms of the affection, the drum frequently closes up perfectly within a few days after its perforation. Some years ago, I was induced to perform numerous operations upon the membrane when in a thickened and semi-cartilaginous state, in which puncturation appeared to offer the only means of procuring relief to the hearing. And in cases where I thus operated, the great difficulty was to keep the membrane open, which, in point of fact, was insuperable. I have performed the operation repeatedly in the same case, in which relief was afforded after each operation, but after a-while the wound would cicatrize in spite of all means I could devise to prevent it. One of the last cases thus operated on (for I have long discontinued this operation, as a remedy, *per se*, not to be depended upon) was a lady brought to me by Dr. Richards of Bedford-square, in which decided relief was afforded to the patient so long only as the opening could be maintained. In these cases it has not been a mere obstruction of the meatus or the tympanum, but an actual cicatrization of the membrane.

It was thought by Sir Astley Cooper, that loss of the membrana tympani was of little consequence to the hearing, he having seen many cases with loss of membrane, and little perceptible deafness, and many of his patients hearing well after he had performed perforation of the membrane of the drum. Other writers have fol-

lowed this eminent surgeon in this opinion, while others, and particularly Kramer, have as violently opposed it, and maintained that perforation was invariably followed by a greater or less amount of deafness, according to the extent of the loss of membrane. Itard held the same opinion as Sir Astley Cooper. I believe a modified view must be taken of the question. My own opinion is that simple loss of the membrane of itself never entails severe deafness; but yet, when taken alone, it often produces a marked diminution of hearing; and sometimes, in consequence of the exposure of the mucous membrane of the tympanum and membrana fenestræ, these structures become diseased to an extent which together with the loss of membrane, produces extreme deafness. The middle ear cannot be exposed to the air for any length of time without such a result being produced.

There is some difficulty in judging of the influence of the membrana tympani on the hearing; but there can be no doubt that hearing is more acute when it is removed altogether than when it is thickened and diseased. Its importance has often been calculated from the amount of hearing regained, when the membrane has been punctured under the latter circumstances. This is evidently a fallacious estimate. As Kramer truly remarks, those with loss of membrane may obtain sufficient acuteness for ordinary conversational purposes; but it is by no means equal to the appreciation of the delicate pulsations of sound perceptible by the organ in a state of integrity.

Lancet, July 15, 1848, *p.* 65.

[Mr. Yearsley next makes the following remarks on internal otorrhœa:]

Internal otorrhœa may appear as the sequela of either acute or chronic inflammation of the mucous membrane of the tympanum. The seat of the discharge is generally the mucous lining of the tympanum, but occasionally it is produced by the deeper-seated structures of the ear, or the ear may be merely the channel by which matter escapes from the brain or spinal cord, and it has been known to come from the parotid gland, or the muscles in the vicinity of the ear. In the great majority of cases the discharge escapes by way of the external meatus, but it sometimes passes from the ear through the Eustachian tube into the pharynx, or by ulceration through the mastoid process.

The term otorrhœa is generally limited to discharges by way of the external meatus; but there seems to me to be no valid reason against applying it to all discharges having their origin in the ear itself, whatever may be the channel through which they may obtain their exit. This difficulty, if any, is, however, lessened by the fact, that though discharges may, in the first instance, make their way through the Eustachian tubes or the mastoid bones, these channels rarely, if ever, continue, the membrana tympani becoming affected, and the discharge then establishing itself through the external meatus. Respecting the nature of otorrhœal discharges, I consider

that no definite classifications of disease can be drawn from the different kinds of matter which escape from the ear, neither do I approve of the division into mucous and purulent otorrhœa which has been commonly made. Almost all cases of otorrhœa supervening on acute inflammation, are at first purulent, but as they proceed and acquire a chronic character, the discharge generally becomes muciform, and sometimes appears to consist of pure mucus. On the other hand, otorrhœa, which attends chronic inflammation, and which comes on very gradually, is almost always of a mucous or muco-purulent kind at first; but if its progress be watched, it will be found that as it goes on the matter becomes puriform. These changes from one kind of discharge to another are so constant, that no arbitrary division of otorrhœa can be fairly made. When we see a case for the first time, and find it discharging either pure pus, or mucus, or a thin serous fluid, we cannot adopt a separate mode of treatment to the different states, for a few days after the nature of the discharge may be entirely reversed, either from external causes, or the state of the patient's health. In all ordinary cases, the discharge is secreted from the mucous membrane of the tympanum, or the degenerated cuticular lining of the meatus, in the same manner as any other discharge from a mucous surface—bronchorrhœa, or bronchitis, for examples. There is not necessarily nor even generally, any ulceration of the secreting surface. These conditions explain the variable nature of the discharge, it being well known that the mucous membranes may, without solution of their continuity, secrete every variety of matter, from pus to ordinary mucus.

The state of the membrana tympani and of the ossicula is always a matter of importance in ear-discharges. Kramer thought that the membrana tympani never ulcerated, unless from independent disease of the membrane itself; but to me this opinion is very questionable. In a great many cases the perforation of the tympanum simply results from the presence of pus, or some other accumulation of matter, in the cavity of the drum, just as perforation of the skin attends the presence of pus or any foreign body beneath the cutaneous tissues. In otorrhœa we may find the tympanum either perforated or entirely destroyed by the same amount of internal disease. As I have already stated, the membrane, according to my experience, may cicatrize when even large portions have ulcerated. The state of the membrane necessarily exerts considerable influence over the ossicula, as, when wholly destroyed, they lose the support derived from the attachment of the handle of the malleus. Hence they are more likely, during the progress of the otorrhœa, to become loosened from each other, and discharged through the external meatus. The whole of the membrana tympani may disappear, and the malleus and incus become dislocated from the membrane and from the stapes, and in some cases no greater deterioration of hearing occurs than in simple otorrhœa; but the loss of the stapes, from its connexion with the labyrinth, is of the gravest importance in regard to the sense of hearing, producing, in fact, total deafness to

all sounds not in immediate contact with the solid parts of the head. This point—namely, that hearing may remain while the stapes continues *in situ*—illustrates a delicate question in the physiology of the human ear. It has been matter of doubt, whether the membrane of the fenestra rotunda is intended for the propagation of sound to the auditory nerve, or to receive the counter-stroke of the wave of sound after it has passed to the labyrinth by way of the ossicula and the membrana fenestræ ovalis. If the membrana fenestræ rotunda were not capable of receiving and transmitting sonorous vibrations from without to the labyrinth, there could be no hearing when the stapes remains fixed to the oval fenestra without any attachment externally, it being a law in acoustics, that aeriform vibrations cannot be communicated, except to a very insignificant extent, to a solid body like the stapes. Hence it appears to be an unavoidable inference, that in such cases it is not the stapes which propagates the sound, but the sound membrane. Looking at the stapes, in such circumstances, as merely a mechanical means of guarding the aquaula, the remains of the organ of hearing, consisting of a simple vibratory membrane, (the membrana fenestræ rotunda,) covering in a fluid which is in contact with the termini of the auditory nerve, is precisely analogous to the organ of hearing in many of the lower animals.

Other authors have looked on this disease as being extremely formidable, and appear to consider a fatal termination from the extension of disease to the brain as very common. Fortunately, this gloomy view of the subject is not warranted, at all events in this country, by the results of experience. Patients suffering from otorrhæa are at all times liable to the supervention of disease; bnt its actual occurrence is extremely rare; and when it does appear, it is usually in scrofulous constitutions, or in persons of irregular habits.

The treatment of internal otorrhœa must in principle be the same as that of external otorrhœa, the chief point for additional consideration being the risk of cerebral excitement, or disease from the suppression of the discharge. Whenever there is pain in the internal parts of the ear, or when the introduction of a probe into the tympanum gives acute pain, we must resort to local depletion by cupping or leeching behind the ear. If the discharge be immoderate or offensive, a weak injection of the solution of sulphate of zinc may be used, the same as in otorrhœa externa, but during the use of any medicinal application to the middle ear, counter-irritation may be advantageously kept up over the mastoid process, to lessen the tendency to inflammation of the internal structures. Aperients should also be administered. Poultices over the ear at night will be found extremely beneficial. In children, simple measures are often sufficient to arrest the discharge and promote the cicatrization of the membrane; but in adults, or when the discharge has been of long standing, it is exceedingly difficult to make any impression upon it.

When internal otorrhœa has become chronic, and the mem-

brana tympani seriously diseased, it appears to me, that so long as the discharge is moderate, and the deeper-seated structures of the ear unaffected, if a tolerable amount of hearing remain, the subject of it is in as good a position as regards hearing as is compatible with the nature of such cases. It is found that the use of astringents to the ear, whether they diminish the discharge or not, invariably aggravate the deafness, sometimes causing permanent tinnitus; and even if the discharge cease spontaneously, which it sometimes does, the hearing is always worse than during the discharge. These circumstances, together with the possibility of inducing cerebral inflammation, taken with the fact, that in the great majority of cases, otorrhœa remains during the whole lifetime without injury to the patient's health, and without annihilating the sense of hearing, are sufficient to make us direct our attention to the preservation of the patient's health, and the maintenance of as great a degree of hearing as possible without the suppression of the discharge. If a good state of health be preserved, and the exciting causes of ear disease be avoided or guarded against, there is little risk of the fearful termination which attends the spread of the disease inwards to the brain. But as age advances, there is a natural tendency to the suppression of ear discharges of all kinds, and their spontaneous disappearance is rarely, if ever, attended by any ill effects, but the desirability of such a termination is lessened by the increase which takes place in the deafness.

Happily, the moistened cotton-wool now presents itself as a remedy for such cases, and my experience justifies me in saying, that in a very great majority, when skilfully applied, it will materially add to the comfort, gradually lessen the discharge, and vastly improve the state of hearing.

In the relation of cases confirmatory of the happy effects of the cotton-wool, it will be unnecessary to describe with minuteness the precise appearances which each ear presented in which it has been successful; it is sufficient to say that in every case there was partial or entire loss of the membrana tympani, with more or less otorrhœa, though it is not a *sine quâ non* that the latter symptom of disease should be present. A perfectly dry ear, with perforation of the membrane, may be always considered a highly favourable case for the operation.

The only question we have, therefore, to consider is, how far it is possible that the sense of hearing can be improved by so simple a remedy? and to enable us to form a proper estimate, I propose to quote two descriptions of cases: the one, to prove the permanent value of the remedy; the other, to show its immediate effect.

With respect to the instruments which I use, I may briefly state that they consist of a pair of small forceps, weak in the spring, so as to admit of the blades coming accurately together with the slightest possible pressure. This instrument should differ from the ordinary forceps in another respect—namely, the

blades or prongs should have no roughness at their extremities, and should be so rounded as to act as a common probe when in apposition. The intention of this instrument is of course to introduce the moistened wool to the bottom of the meatus, having done which, they should be disengaged from the wool, and withdrawn. The blades being then brought together, the forceps may be again introduced, acting as a common probe, for the purpose of adjusting the wool, on the spot, which, when covered, produces the best degree of hearing of which the case may be susceptible.

An instrument, then, is required for the introduction, the adjustment, and the withdrawal of the wool; and I need scarcely say that the forceps I have described are sufficient, in dexterous hands to accomplish these requirements; but I have found that my patients have preferred a separate instrument for the adjustment as well as the withdrawal of the wool. For these purposes, therefore, I have constructed a simple rounded bar of silver, probe-pointed at one extremity, and with a small screw at the other: the one end serves to adjust the wool, the other most surely will entangle and withdraw it. These instruments may be procured of Messrs. Weiss, in the Strand, or of Mr. Thompson, Windmill-street, Haymarket.

A few words as to the mode of applying the wool. The practitioner should get a view of the tympanum, and make himself acquainted with the nature and extent of the disorganization. This he will be able to do by the aid of my speculum auris, a description of which appeared in the Lancet so far back as September, 1839. It is chiefly distinguished from other specula by having a roughened surface at the extremity of each blade externally, to the extent of a quarter of an inch. The roughened blade clings to the meatus, and enables the operator to *straighten*, as well as to *dilate* the passage, and a much better view is thereby obtained. A small piece of fine wool, differing in size according to the case, and fully moistened in water, is then introduced through the speculum to the bottom of the meatus, and adjusted superiorly, inferiorly, anteriorly, or posteriorly, according to the situation of the perforation and other circumstances connected with the case; but care must be taken that the entire opening be not covered, otherwise the experiment will not succeed. It is also indispensable to success that the moisture of the wool should be preserved.

Lancet, Aug. 5, 1848, *p.* 152.

[The operation of perforating the tympanum, it is well known, has not by any means realized the hopes which were entertained of it, when it was first introduced by the Sir A. Cooper; in fact it has been a failure. But now, Mr. Yearsley remarks,]

A new field is opened for testing its utility—not so much with the expectation of amendment from the operation, but as to how far it can be made subservient to the use of the moistened cotton.

It is indispensable that the tympanum should be open for the singular remedy to succeed. When, therefore, disease has not produced such a condition of the ear, artificial perforation, or trephining of the membrane presents itself to our notice as the means by which such a result may be attained.

[This operation of perforating the tympanum may be performed, Mr. Yearsley thinks, with a fair prospect of benefit under the following circumstances, and when no other mode of proceeding affords any hope of relief:]

1. When there is induration and thickening of the membrana tympani to such an extent as to cause deafness, but when there is no disease of any other part of the auditory organ. 2. When there is stricture, occlusion, or obstruction of the Eustachian tube, irremediable by catheterism, and no disease of the cavitas tympani, except simple obstruction, the other parts of the ear remaining healthy. 3 In cases of extravasated blood in the tympanum, which cannot be removed by way of the Eustachian tube, either from its stricture, occlusion, or some other cause. In addition to these points, it must be noticed that, even in the best cases, the assistance is only the removal of a mechanical obstruction. The membrana tympani is an adjuvant to hearing, but unless the nerve of audition remain tolerably healthy, no alteration in the state of that membrane will be of any avail. The membrane, only aiding in the transmission of aeriform vibrations, its induration, or insensibility, in nowise interferes with the sonorous vibration of solid bodies in contact with the side of the head, so that the removal of impediment in the membrane is of no service, unless the patient can, before the operation, distinctly or tolerably hear a watch when held between the teeth, or applied by contact to the ear. This is of paramount importance, and was insisted on by Sir Astley Cooper, though little attended to by subsequent writers.

In my own practice, an additional indication for the performance of the operation, as far as I am aware not known to other aural practitioners, but equal in importance to any of those previously pointed out, has been satisfactorily proved. This is, in those cases where there has been accumulation of pus in the middle ear, from inflammation of the tympanum and rupture of the membrane, to allow the exit of matter, but in which the membrane has subsequently cicatrized. The cicatrization of the membrane, by increasing its tension, and altering its structure, invariably produces more or less deafness.

In such cases, it often happens that no other injury to the ear has been left by the disease, which is most common in children or young persons, and in which the membrane of the tympanum cicatrices in a few days after the eruption of the matter. In other cases, the membrane only closes after the long persistence of internal otorrhœa. Here there is not the same chance of relief, because the disease may have affected the fenestral membranes, so as to render them insensible to sound, in which case neither the removal nor restoration of the membrana tympani would prove of any avail.

Careful examination of the ear in such cases will often reveal no sign of a cicatrix, nor any indication whatever of a diseased state of the tympanum. We must get our diagnosis from the previous history of the case. If the patient has ever had inflammatory disease of the ear, followed by discharge, in which deafness appeared as the discharge ceased, the diagnosis is almost complete, as external otorrhœa does not produce deafness without some objective signs of disease of the membrane. In fact, if in such cases a watch can be heard distinctly when in contact with the auricle, or with the teeth, we become quite certain of the cause of deafness, with the single exception of the possibility of disease of the fenestral membranes. Other cases of the same kind are sometimes produced by accidental rupture of the membrane, followed by cicatrization and loss of hearing.

We may sum up, then, by saying, that in cases of deafness from obliteration or irremediable obstruction of the Eustachian tube, either with or without extravasation of blood in the tympana; in cases of excessive induration and hypertrophy of the membrane; and in cases in which it is rendered non-vibratile by ulceration and subsequent cicatrization, there is a probability of improving or restoring the hearing by the operation on the membrane, provided always that the function of the auditory nerve remains tolerably perfect.

As far as my experience and observation go, the operation will always be unsuccessful in the more complicated cases, or in cases in which these conditions do not exist.

There is one other indication for the performance of perforation, not so much with a view to remove a symptom like deafness, as to preserve as much as possible, the integrity of the whole organ. This is the occurrence of suppuration within the cavity of the tympanum. When matter has formed, the only natural outlet is by way of the Eustachian tube; but in nine cases out of ten, this canal participates in the disease to such an extent as to prevent its escape in this way. It therefore either bursts through the membrane of the tympanum, or extends in other directions, with sometimes the most alarming results. The pus in such cases may be removed by an incision through the membrane, with the same success as it is removed by artificial means from ordinary abscesses.

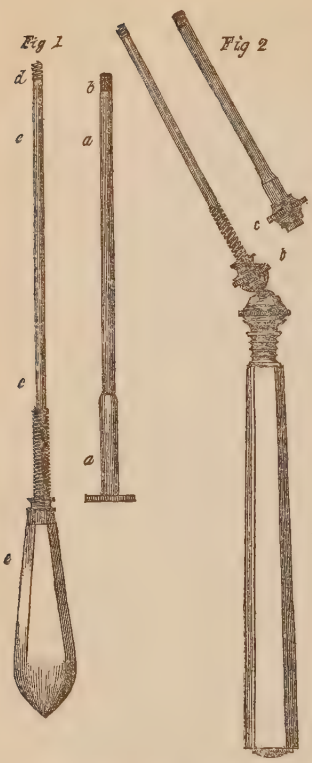
With respect to the mode in which the operation is to be performed, we are now in possession of a tolerably perfect instrument for the purpose. It has been only by very slow steps that anything like perfect instrumentation has been attained. Sir Astley Cooper used a small trocar; but this kind of instrument, however well adapted for the evacuation of fluid from a cavity, has, in the case of the membrana tympani, the disadvantage of allowing the subsequent cicatrization of the opening it makes. Upon this plan, Itard's stilette of tortoise-shell was a very unnecessary refinement, possessed of so many disadvantages, that I believe no one ever used it but the author. Saissy merely used a trocar, as others had done before him. Himly devised a round punch for removing a circular

piece of the membrane; but this procedure, though an obvious improvement, inasmuch as it prevented the ready cicatrization of the aperture, required so much force to pass it through the membrane as to endanger other parts besides that intended to be removed by the instrument. A more complex instrument was invented by Deleau; it consists of a fine steel rod ending in two backed points, each forming segments of the worm of a screw, which are so arranged that the barbs shall hold the piece of membrane which is being cut out by the rotation of the instrument. If this were done perfectly, the objections to which a mere punch or trocar is liable would at once be met; but such can hardly be said to be the case. It is, however, on the principle devised by Deleau, that the ingenious instrument of Signor Fabrizi is constructed. A few years ago that gentleman brought his instrument to this country, and at first view it appeared to realize the fondest hopes of the few remaining advocates of the operation, and I took opportunities of trying it on the dead subject: but I soon found many objections to the instrument which it seemed to me might be easily obviated. How far I have succeeded must be left to the judgment of my readers; but I may observe, that within the last three months I have had the pleasure of a visit from Signor Fabrizi himself, who is surgeon to the hospital at Modena, and to whom I submitted my modification of his instrument, with which he not only expressed himself greatly pleased, but candidly admitted that his own must now be entirely superseded by it. I will attempt a description of the two instruments, which, assisted by the plate, will, I hope, be perfectly intelligible.

Fabrizi's instrument is composed of two pieces—(see fig. 1.)—1st, a canula, (*a a*) three inches and a half in length, and a line in diameter, terminating in a cutting edge or punch (*b*)—2nd. A perforator (*c c*) with a spiral extremity (*d*) similar to a corkscrew, and fixed in a handle (*e*) two inches in length. The spiral rod or perforator is accurately adjusted by means of a female screw within the canula, passes through its whole length, and projects to the extent of a line, this being the extent of the spiral extremity.

With this instrument the operation is performed—1st, by worming the perforata into the membrana tympani to the necessary extent; and 2ndly, by a rotatory movement of the canula over the spiral rod in an opposite direction. The cutting edge of the canula thus takes out a circular portion of the membrane, and the instrument is then released, with the excised portion of membrane attached to the screw.

Now, in using this instrument, rotatory movements in opposite directions, and a shifting of the hand from the handle to the canula to effect them, are required, and these will be found to be insuperable objections to its use. Besides, it appears to me, that the operator should be sure of the exact spot upon the membrana tympani which he is going to trephine; but this cannot be obtained with Fibrizi's instrument, for in holding it, the hand altogether intercepts the view of the membrane.



To remove these various objections to the instrument, (see fig. 2,) I have lengthened the handle (*a*) at least three inches, so that it may be steadily grasped by the whole width of the hand of the operator. 2nd, By a ball-and-socket joint, it is capable of being set at any angle in respect to the forepart of the instrument, and it is only necessary to place the point of the forefinger, first, on the projecting rim of the perforator (*b*,) which admits of rotation only to a limited extent, sufficient to lay firm hold of the membrane; and secondly, to carry the finger forwards to the projecting rim at the extremity of the canula (*c*,) rotating this likewise in the same direction until you feel that the membrane has been cut through. There is no tasking of the memory as to which direction the perforator should be turned, and which the canula; no shifting of the hand, which certainly endangers the success of the operation: all is simple and straightforward. You have only to remember to turn both the perforator and the canula from left to right, and the operation may be completed in ten seconds. But the great advantage of this instrument is, that the left hand is at liberty, and may be employed in applying the speculum auris through which the *tympanatoire* should be introduced.

Mode of performing the operation.—The proper case being selected, the shaft of the instrument is to be introduced into the ear through a speculum, and the circular piece of membrane removed from the lower and anterior part of the membrane, this being the situation which offers the largest surface of free membrane. The chief points for observance in the operation are the selection of the proper spot, and great care that the spiral has good hold of the membrane before the cutting process is commenced.

[After the operation, care must be taken to guard the ear against the influence of cold and exposure to the air, by wearing a cap, or inserting a piece of cotton wool in the concha; and the wind also must be guarded against until the parts have become gradually accustomed to the new stimulus.]

Lancet, Aug 19, 1848, *p.* 205.

141.—*On the Mode of Applying Cotton Wool, as a Substitute for Loss of the Membrana Tympani.* By T. Buchanan, Esq., Hull Dispensary for Diseases of the Ear.—[Mr. Buchanan describes the following method of applying cotton wool in perforation or destruction of the tympanum; the Eustachian tube being supposed to be pervious, and the ossicula auditus in situ. He says—]

Let the operator take a small quantity of fine, clean cotton wool, saturated completely in tepid distilled water (to which, in some cases, an alkaloid might be added if necessary,) then mould it to the figure of the membrana tympani, but somewhat broader, beating it gently, so as to get rid of the superfluous fluid, and assist in its formation. In order to facilitate and render the operation more easy and successful, the operator ought to be provided with a silver instrument of the following description:—

The instrument and handle to be of silver, four inches in length, and to consist of four extremely slender probes, clustered around a centre probe. The extremity of each of these probes to stand nearly three lines from the centre probe, and to have a small knob or button on its extremity; that of the centre one to be rather broader than the others. The diameter of these five probes, when united, ought not to be above the size of a common probe In order to close the outer probes, nigh to the central one there ought to be a small slide, or regulator, by which the operator could regulate the instrument, so as to suit the diameter of the meatus of the patient, whether large or small. If the handle were to be bent, so as to form an angle, the operator could then see the progress of the operation better than if the instrument were straight. These probes may be slightly curved upwards, to assist in applying the cotton in an oblique position, similar to that of the membrana tympani; the operator can at any time bend them so as to suit his purpose or inclination.

Or take a common stout probe, and let the extremity be split up into four slender slips, the length of three lines, and each of these slender wire-like branches to have its proportionable part of the original knob or button, and the operator may bend, separate, or close them, so as to suit the calibre of the meatus of the patient to be operated upon. This simple instrument may be of considerable utility in the operation, for, by means of the other flat end of the probe, any inequalities of the cotton may be adjusted so as to assume any requisite position.

But if the operator has not an instrument of the above description, and the patient is unwilling to wait until one be made, then let him take a small piece of whalebone, of about four or five inches in length, and whip it with a waxed thread upwards of one half of its length, then split the other half into four slender slips. Or take four fine slender slips of whalebone, of the above length, unite them firmly together, by whipping them with a waxed thread, for the length of two inches, then passing the thread several times between the slips, so as to make them stand out from each other. Let these pieces be of uniform length, and dipped into hot melted red wax, so as to leave an extremely fine knob of wax on each extremity, which can easily be flattened by applying the whole warm to any plain surface. A slide or regulator can be easily formed of fine brass wire, &c.

I have been thus particular in describing the formation of a temporary instrument, in order to assist the young practitioner, who might have neither time nor opportunity to procure one, such as either of the silver ones described; but who might be able to fashion one of whalebone or gutta percha, with which he might, perhaps, perform the operation successfully, and to the satisfaction of all parties.

Before the operator attempts to introduce the cotton, he ought to cause the patient to force a strong expiration through the Eustachian tube, so as to clear the tympanum; and, if there be any purulent matter there, it will be forced into the meatus, from whence it can be easily removed by means of a common probe and lint.

Having prepared the ear, and placed the patient on a lower seat than that of the operator, with the rays of the sun illuminating the meatus, and the instrument adjusted to the calibre of the tube — which, if it be of silver, ought to be slightly warmed in hot water — the prepared cotton should then be placed on the extremities of the instrument, or buttons of the probes, and the whole introduced carefully into the meatus, then cautiously pushed inwards until it is placed close to the remains of the membrana tympani, or where it was situated. The most delicate tact is now necessary to preserve the flat extension of the cotton, and place it in its proper oblique position; and also to give due pressure, so as to cause a partial adhesion of the substitute to the manubrium of the malleus, without injury to the ossicula, or deranging the flat and even expansion of the cotton. This is by far the most difficult part of the operation, which will be greatly assisted by the flat extremities of the probes, while the oblique position of the manubrium will guide the operator how to place the cotton in a similar position. Superiority of tact here can only be acquired by frequent operations.

If the operator be afraid of too much pressure, he may withdraw the instrument, and apply a camel-hair pencil, slightly moistened in tepid distilled water, with which he should carefully bring the cotton in close contact with the manubrium.

The position of the cotton should now be similar to that of the membrana tympani in the healthy subject, as it is neither more nor less than a substitute for that important membrane.

The prepared cotton being thus applied, so as to be supported in its position by the meatus-arium of the meatus, and, being rather larger than the calibre of the meatus, it will, from its flexibility in the moist state, and its extremely minute and numerous delicate fibrous structure, stimulate the branches which lead to and form the tympanic plexus, while it will cling to the parietes of the tube, so as to accommodate to the usual strength of the undulations of sound, and at the same time, from its elasticity, ensure the action of the osseous so as to affect the sentient parts of the organ. And thus the simple cotton pledget, an article of little intrinsic value, if placed according to the above directions, will in many cases, from its positive aptness and correctness, become an important and valuable substitute in restoring diminished audition, provided the auditory and assistant auditory nerves have not been injured by exposure to the atmosphere, or to the benumbing effects of strong and loud undulations of sound.

Medical Times, July 29, 1848, p. 203.

142.—*Ergot of Rye a Remedy for Dilatation of the Pupil from Belladonna.*—M. Combettes has announced a plan by which he has succeeded in removing dilatation of the pupil produced by belladonna in a patient of his, in whom the iris was scarcely visible, so complete had been the action of a small dose of belladonna applied externally. For some days the excessive dilatation resisted the employment of various remedies. He prescribed powdered ergot of rye, taken like snuff. The dilatation disappeared in a few seconds—it soon returned, the same remedy was again employed, and it did not reappear. He thought that ergot might be thus used in cases in which dilated pupil arises from other causes.

Medical Gazette, Sept. 8, 1848, p. 535.

143.—*On the Extraction of Foreign Bodies from the Conjunctiva.*—*By* Dr. T. Ogden Ward.—[Dr. Ward describes a little instrument made for the extraction of particles of coke from the conjunctivæ of railway travellers.]

It consists simply of a common sewing needle, of sufficient length to be twisted over the flame of a candle into a loop the eighth part of an inch in diameter, and bent so as to form a concavity equal to the convexity of the eyeball; it is filed to form an edge on the inner side of the loop; and the ends are inserted into a small handle.

In using it, the concave surface is applied to the eyeball so as to embrace the foreign body; the instrument is then drawn in the direction of the handle, and the internal edge, catching against the projecting portion of the body, raises and withdraws it.

The advantages of this instrument are, that it can be introduced within the eyelids, even when closed, and be passed over the surface of the eyeball in any direction, without the slightest fear of injury. Even when the particles are so small as to be invisible to the naked eye, having detected their position by a lens they can thus be scraped off with ease. Lastly, the instrument can be constructed in a few minutes in any situation, no cottage being so destitute as not to be able to provide the materials—viz., a needle, a candle, a file or a whetstone, and a bit of wood for a handle.

Medical Gazette, July 14, 1848, *p.* 82.

MIDWIFERY,

AND

THE DISEASES OF WOMEN.

144.—ON ABORTION.

By Dr. W. Tyler Smith.

Taking the term abortion in its widest signification, Dr. Smith observes that the mechanism by which it is effected varies according to the period of pregnancy at which it takes place. He says,

In abortion, at various intervals between conception and parturition, the nearer it is to the time of conception, the more it appears like menstruation: the nearer it is to parturition, the more closely is it imitative of that process. In the earliest abortions, the motor actions of expulsion are confined to the Fallopian tubes: there is little motor action of the uterus, either of dilatation or contraction, the ovum being washed away by the menstrual fluid. An exception must, however, be made in the case of women who have borne several children, in whom the uterus is sometimes a contractile organ, even during menstruation. Usually the uterus does not contract with any force during the first two or three months, or abortion would probably be far more frequent than it is. Abortion at this time is rather a mechanical dislodgment, by the separation of the ovum from the uterine parietes, than a distinct motor act of expulsion, the motor action of the uterus being so slight. After the ovum, becoming separated from the uterus, has entered the vagina, it excites expulsive action of the abdominal muscles, similar to those of micturition and defecation. When quickening, or the first peristaltic movement of the uterus, has occurred, the uterus dilates and contracts as in natural parturition, only less perfectly; and abortion becomes gradually divisible into the different stages of natural parturition. There is the dilatation of the os uteri, the contraction of the uterus at intervals, or in pains, and the bearing-down, or expiratory actions which expel the ovum from the vagina. The condition in which the ovum is expelled, varies also according to the time at which it takes place; in the early months the ovum is expelled entire, except when decomposition has taken place, the cord being involved in the membranes; but as utero-gestation advances, the membranes are ruptured during expulsion, as in natural labour, and the fœtus and secundines are discharged separately.

[Attention to the various causes of abortion, centric and excentric, must form the basis of our prophylactic measures. Amongst these causes, Dr. Smith mentions *mammary* irritation, and observes, under this head, that weaning should always take place as soon as the occurrence of pregnancy during lactation becomes evident. He refers briefly to *dental* and *vesical*, and then to *ovarian* irritation. With respect to the latter he says:]

Here our cautionary plans should be chiefly confined to the catamenial or periodic dates. Patients suffering from severe ovarian irritation during pregnancy, should be treated in the periodic exacerbations much in the same way as we should treat dysmenorrhœal patients during the actual periods attended by pain and difficulty. Warm hip baths, not exceeding blood-heat; warm enemata of the same temperature; the application of a plaster of opium or belladonna over the sacrum; and most especially the avoidance of coïtus during the periodic dates of pregnancy, should be directed. As regards the blind periods of utero-gestation, as they may be called, continence is as proper in all cases at these times, as it is during the actual flow of the catamenia. It is during the first half of pregnancy, or in those women who have suffered from dysmenorrhœa before impregnation, that moral and physical sedatives should be most strictly enjoined. I may here observe, that in dysmennorrhœal cases the times of conception are probably times of abortion, the impregnated ovum descending at once through the Fallopian tubes, uterus, and vagina, with an apparent return of the catamenial discharge, instead of tarrying for development in the uterus, so that women, under these circumstances, may never be conscious of having conceived, though they really do so. There can be little question but that many supposed cases of sterility are of this kind; owing to increased excitability of the motor apparatus of conception, the generative act never goes beyond impregnated ovi-position; abortion follows so closely upon abortion, that neither the conception nor the abortion are perceived. Such cases, admitting, as they do, of almost certain remedy, are very different from cases of actual sterility. I have just said, that in ordinary instances of abortion excited by ovarian irritation, it is during the early months that precautionary measures are of most importance; but in those extraordinary cases in which abortion is caused by the adhesion of the placenta to the os uteri, it is in the latter periodic dates of pregnancy when the greatest danger is incurred. I mentioned to you in the last lecture, that, even when not the exciting cause, ovario-excitor action was still in many cases the determining cause of premature action of the uterus; so that in all cases of threatened abortion it behoves the medical attendant to treat the periodic dates with circumspection.

I have been so much impressed with the necessity of attending to the imperfect utero-gestation, that I have framed a Calendar or Table, for reducing calendar to lunar months, and I think it likely to be useful to others, by economising time.

The small circle of the calendar, contains the fifty-two weeks of

the year, divided into the twelve calendar months, and the thirteen menstrual periods. The segment on the outside of this circle contains a scale of 280 days—the normal duration of pregnancy—divided into the ten periods of utero-gestation. I have marked five days at each period, as the ordinary duration of the catamenia, though in some women it is greater, in others, less than this. Reckoning the catamenial period preceding conception, and the lochial period of parturition, I have included eleven catamenial dates; so that the scale really represents 285 days. The best mode of computing the time of paturition I believe to be this: you should find the date of the commencement of the last menstruation, upon which conception would follow a few days after the cessation of the catamenial flow, and you may then expect than the ovarian irritation, or the lochial period, which determines the state of natural parturition, will begin with the show or the persistent contraction of the uterus, at the commencement of the eleventh periodic date, and that labour will be fully developed on some one of the days of this ovarian period. Thus, if this scale of calendar months be made moveable, and the scale of menstrual or lunar periods fixed, all you have to do is to turn the moveable circle round, so as to make the arrow at the word "conception" point to the date at which the last menstruation commenced, and the second arrow, at the other end of the scale, points to the day when the commencement of parturition may be expected. The menstrual, or lunar scale, will also mark accurately the date of each of the periodic excitements during pregnancy; so that you may at once, without the trouble of calculating, give your patients the time of parturition, and the dates when all improper physical irritation and causes of abortion are to be specially avoided. Of course, these remarks apply to strictly natural utero-gestation, occurring in women who menstruate regularly every twenty-eight days.

This simple contrivance will give you, at a glance, other information of a practical kind. It indicates the date—

1. Of the abortive periods.
2. Of parturition.
3. Of quickening, and the first uterine movements.
4. Of the viability of the fœtus.
5. Of the periods when premature labour may be induced most easily and safely.
6. Of the periods of special danger in placenta prævia, &c.

[Dr. Smith dismisses the subject of rectal irritation in a few words, and then comes to speak of *vaginal* irritation as a cause of abortion. He advises in the case of women who have aborted during previous pregnancies, or in whom special symptoms lead us to expect this accident, that the most rigid continence should be observed during the whole of pregnancy; and that in all irritable subjects coïtus should be avoided during the ovarian periods of the gravid state. We must be careful also not to cause irritation by the use of the plug, when we apply it in threatened abortion: and with this object,]

The plug should not be so large as to stimulate the vaginal surface excessively, and it should be fairly introduced into the upper and roomy part of the passage, so as not to irritate the ostium vaginæ; at the same time there should be nothing like hard pressure on the os and cervix uteri. Whenever the presence of the tampon, carefully applied, permanently increases the periodic pains felt in threatened abortion, it should at once be withdrawn, unless we resolved to abandon the ovum to its fate. The plug ought never to be left in the vagina more than twelve hours at a time, otherwise it becomes extremely fœtid and disagreeable, and probably injurious; it is better even to take it away and renew it oftener than this, and to dip it in a weak solution of the chloride of lime before its introduction.

[Any persistent irritation of the *uterus*, but especially of its os and cervix, may cause abortion: we must, therefore, endeavour to relieve those affections, such as inflammatory ulceration of the os and cervix, which admit of treatment: and we shall find, Dr. Smith observes, that our remedial measures, though in themselves sources of uterine irritation, are, if judiciously pursued, much less likely to cause abortion than the disease itself. After referring briefly to *retroversion* of the uterus, as a cause of abortion, Dr. Smith proceeds to say,]

In the prevention of abortion, morbid conditions of the placenta required to be considered. The placenta is to the fœtus what the branchiæ are to the fish, the blood of the mother being the fluid medium in which the fœtus respires oxygen during intra-uterine life, a point which has been ably insisted upon by Professor Simpson. For this reason it appears to be, that the blood of the mother during pregnancy is more highly oxygenated than at other times, approaching to the state of inflammation, as may be seen by the buffy coat and the greater coagulability present in the blood drawn from pregnant women. The placenta has a tendency to become unfit for fœtal respiration towards the end of utero gestation, when nature is preparing for the change from branchial to pulmonary breathing. There is frequently observed on the surface of the mature placenta crystals of carbonate of lime, which must tend to interfere with its functions as a respiratory apparatus, and generally, I believe, to facilitate its separation from the uterus. This caducous preparation of the placenta, by the deposition of the salt of lime, is probably connected with the demand for ossific matter in the fœtus, but it must also remind you of the similar deposit of silica in the stems of ripe fruit, in order to facilitate its separation from the parent tree; or we may compare it to the deposit of earthy salts in the lungs and other organs in old age, as preparatory to the death of the individual. It is pretty certain that in some cases of abortion in the latter months, caused by the death of the fœtus, the death has depended on the low respiring power of the placenta, the placental development having progressed so rapidly as to render the organ prematurely deciduous. Under these cir-

cumstances, the child dies asphyxiated, unless born into the atmospheric air, just as the tadpole perishes when its branchial development has concluded, unless it can be removed from water to the air. In the opposite cases to this, we have sometimes to deal with retention and adhesion of the placenta, because it is not ripe for its separation at the time of labour. Other morbid conditions of the placenta may tend to the death of the fœtus, and indirectly to abortion, such as inflammation and induration of the organ, tubercular deposit, or effusion of blood into its structure—placental apoplexy, as it might be called; but such morbid states are obscure in their diagnosis, and very much removed from definite treatment.

Dr. Power was, I believe, the first to enter fully upon these non-respiratory causes of abortion, and to propose means for aiding the respiration of the fœtus by purifying the maternal blood. He recommended the depuration of the blood of the mother, during pregnancy, by attention to diet, the respiration of pure air, and the careful regulation of all the secretions. In pregnancy the lungs of the mother have to consume the carbon of two circulations; and in cases where, from the pressure of the abdomen upon the thorax, or contraction of the chest, the respiration is imperfectly performed, Dr. Power prescribed the inhalation of air containing an increased quantity of oxygen, or the use of medicines containing a large quantity of oxygen loosely combined, such as the nitric acid. More recently, Professor Simpson states that in cases where the fœtal respiration is imperfect, he has found the chlorate of potash useful on the same principle—that of arterializing the maternal blood. In cases where the death of the fœtus in utero, by asphyxia, has occurred in former pregnancies in the latter months, Professor Simpson further recommends the induction of premature labour before the death of the child. These facts should at least impress upon accoucheurs the importance of considering the state of the blood and the fœtal respiration in all cases of pregnancy. It is evident that the sanitary condition of the fœtus must always depend upon the purity of its respiring fluid in the blood-vessels of the mother.

It is worthy of remark, that in abortion the occurrence of hemorrhage is far more frequent than in natural labour. Abortions are, indeed, rarely free from hemorrhage, and a sanguineous discharge is the commonest symptom of a threatened premature expulsion of the ovum. When the circulation between the embryo and the mother is carried on by the decidua, as it is in the very early months, separation of any part of the ovum from the uterus must necessarily produce hemorrhage; but as the placenta is gradually formed from the decidua and chorion, and the utero-fœtal circulation becomes circumscribed and localized in one particular part of the uterus, the chances of hemorrhage are very much diminished, unless the placental portion of the ovum should be detached from the uterus. The decidua at first performs the function of a diffuse placenta, enveloping the whole embryo, so that separation at any point, in a commencing abortion, necessarily produces

hemorrhage. In this point of view, the hemorrhage of early abortion is allied to the unavoidable hemorrhage of placental presentation. When the placental portion of the membranes is attached high up in the uterus, and there is hemorrhage, with discharge of the blood externally, the blood has burrowed its way by gradually separating the membranes from the uterus, so as to find a passage, after the manner of dissecting aneurism. Natural gestation, as distinguished from placenta prævia, admits of the expression of the following axioms respecting hemorrhage:—The earlier the expulsion of the fœtus, the more certain is the occurrence of hemorrhage, and the less the danger from the loss of blood; but as pregnancy proceeds towards the natural termination, the chances of hemorrhage diminish greatly, while its importance, when it does occur, increases in an equal degree. In abortion the danger from hemorrhage is before the expulsion of the ovum; in labour at the full term, it arises after delivery.

In abortion in the early months the uterine hemorrhage itself is similar to the hemorrhage occurring from other internal organs, and the means for arresting it are also much the same. We should aim at closing the mouths of the bleeding vessels, by diminishing the force and frequency of the circulation, by astringents, and by promoting coagulation by pressure, refrigerants, &c. The loss of blood itself so directly tends to diminish the circulation, that depletion is seldom necessary in abortion; the best astringents are the acetate of lead or pure tannin given internally; as refrigerants, the cold napkin applied externally, or ice introduced into the vagina, are useful; while the vaginal plug, or pressure over the pubis, are the best modes of producing coagulation mechanically. But all these remarks apply to the very early separations of the ovum from the uterus, when the uterus is not so developed as to be decidedly contractile. When pregnancy is more advanced, and the organ contracts, the mouths of the separated vessels are comparatively large, and new principles must be introduced into the treatment of the hemorrhage. We can only arrest the flow of blood by exciting uterine contraction. When we now use the tampon it is not to produce coagulation, but to excite contraction; if we apply cold, it ought to be with the same intention; internal astringents are of no use whatever. This is a practical distinction, for if we apply cold to produce coaguiation, it should be continuous; if for contraction, it should be intermittent. There is, of course, a time in the history of abortion in the early months, in which a combination of the two plans are advisable, according to the development of the uterus.

It is an important question,—When should the hope of saving the ovum be abandoned? Women have gone on to the full time after amputations, after local injuries in the neigbourhood of the uterus, and such large uterine hemorrhage, that there could be no doubt a considerable separation of the ovum from the uterus must have taken place. There is in some women a remarkable tenacity of the product of conception, so that the effort to prevent abortion

should be persevered in as long as possible. In expected abortion, one of the most sure indications of such an amount of disturbance in the uterine nervi-motor apparatus as will probably expel the child, is afforded by sudden relaxation of the bowels; before the regular contractions of the uterus set in, there is generally a diarrhœa, with some amount of tenesmus. We must judge the proper times in which to adopt measures of expulsion and retention, by the relation of the ovum to the os uteri, particularly its protrusion through the dilated mouth, and the amount of the previous hemorrhage. If such changes in the ovum have occurred as to warrant our belief in its death, or if the hemorrhage has endangered the mother, we should not hesitate about its prompt expulsion. In the later abortions, in the fifth or six months, auscultation affords a valuable aid to diagnosis. If we can, in the earlier stage of threatened abortion, hear the fœtal heart; and if, in the course of the hemorrhage or separation of the ovum from the uterus, we distinguish the failure and cessation of the heart's action, we may conclude the fœtus to be dead, and think only of the delivery of the mother.

In abortion, the chief danger of the mother is from loss of blood; but this is rarely so considerable as to occasion immediate risk, though nothing tends more surely to ruin the constitution than a succession of hemorrhagic abortions. Other dangers—such as rupture of the uterus, and convulsions—are of still more rare occurrence. When it has been decided that the ovum cannot be saved, the uterus must be emptied as soon as possible. To effect this, the membranes must be ruptured—a measure which generally diminishes the hemorrhage considerably, as the proportion of the liquor amnii to the size of the fœtus is greater in the earlier than in the later months. It is, however, more difficult to rupture the membranes in such abortions, owing to the undeveloped state of the os uteri, and the thickness of the membranes themselves. If the hemorrhage continues, and the ovum cannot at once be removed, the sponge plug must be had recourse to, both with the intention of stopping the hemorrhage and exciting the uterus to expulsive action; the plug should now be pressed upon, or even within the os uteri if possible. If the os uteri is dilated, we can endeavour to separate the ovum from the uterus, and bring it down, care being taken not to break the friable mass it presents. The ergot of rye should be given to contract the uterus, and so arrest the hemorrhage, and aid in expelling the ovum in cases where it cannot be brought away by the fingers. When the uterus cannot be otherwise excited, a purgative enema will often bring on immediate expulsion. In many cases, a lingering abortion is terminated by vomiting, the expulsive effort being more powerful than the bearing-down excited by the ovum. In other cases, the occurrence of fainting ends the process, the syncope being accompanied by powerful contractions of the uterus. It seems as though, in the undeveloped state of the uterus, it was inadequate to expel its contents without the aid of some of the other expulsory processes, such as vomiting or

defecation. When the uterus is emptied of its contents, the hemorrhage almost invariably ceases; if it does not do so, we may be almost sure that there are either some parts of the membranes or coagula retained in the uterus and vagina, the removal of which, when they produce bleeding, is as necessary as the removal of the placenta in ordinary labour. It is well known that women do not suffer so much after loss of blood in abortions as in labour at the full term: this is because they have not been exposed to the wearying and irritating effects of full pregnancy, and because the abdominal pressure removed is not to the same extent; still, after abortions, the abdominal bandage should be applied.

To eradicate the abortive Diathesis, prolonged continence ought to be observed. A year's entire rest to the sexual system is not too much in severe cases, and the catamenial periods should be carefully attended to. Dysmennorrhœa should be relieved, if there happens, as there frequently will happen, to be a tendency to this disease. Any disease of the utero-vaginal passage should receive appropriate treatment. Everything which can possibly be devised should be resorted to, to give tone to the uterine nervi-motor system—such as the administration of iron in delicate subjects, the cold douche of the loins, and general cold bathing, In very obstinate cases I should be disposed to try the effects of a continued galvanic current through the spine and sexual organs, or I would prescribe small and continued doses of ergotine or strychnine as tonics of the utero-spinal axis. The general sedatives of the nervous system during pregnancy are, moderate exercise, spare and cool diet, small bleedings in plethoric or in sanguine habits, mental quiet, tepid or cold hip-baths, and, above all, a pure atmosphere. The nervous system in pregnant women resembles in its irritability the nervous system in infants and young children; ordinary narcotics are therefore stimulant rather than sedative, and as such ought not to be prescribed in ordinary cases during utero-gestation.

I may mention, in conclusion, that without a knowledge of excito-motor action, no large, comprehensive, or successful view can be taken of the pathology and therapeutics of abortion.

Lancet, April 29, 1848, *p.* 466; *and June* 17, 1848, *p.* 656.

145.—ON THE NERVI-MOTOR ACTIONS OF LABOUR.

By Dr. W. Tyler Smith.

[Dr. Smith gives the following account of the actions of labour in their natural order of succession.]

First in the order of events, there is the excitation of the ovarian nerves, followed by the equable and continuous contractions of the uterus. Then there is the pressure exerted by the fœtal head, as yet defended by the liquor amnii, upon the os uteri, and the consequent excitement of the orificial nerves, with the answering and intermittent contractions of the uterus. In the next place, the

vaginal excitor nerves are irritated by the pressure of the now advancing and undefended head, or presenting part of the fœtus, an irritation which calls forth the respiratory action of labour in addition to the uterine contractions. Then we have the excitation of the nerves of the ostium, vagina, and the remarkable modifications of motor action thus produced. After the expulsion of the fœtus, the placenta remains to supply an intra-uterine stimulus, sufficient to affect the now exalted excitability of the uterine nerves, and thus to cause its expulsion. When the placenta has been expelled, the excitation of the uterine surface, from which the placenta has been separated, the excitation of the mammary nerves by suckling, and by the secretion of milk, and the excitation of the pneumogastric, now in excito-motor relation with the uterus every time food or or drink are taken, are, with the aid of emotion, and the continuing ovarian irritation which has been present during the whole of labour, perfectly sufficient in normal cases to prevent hæmorrhage, and gradually to effect the return of the uterus to the contracted and comparatively small size of the unimpregnated woman who has borne children.

The physical pain of labour, as distinct from the muscular contractions, is undoubtedly depressing in its effects; but still it is unlike other and purely pathological pain, inasmuch as it may be very distressing, and yet disappear entirely during the intervals of the pains, so that in a painful labour the patient may sleep or remain quite cheerful between the pains, and at the close of delivery may not feel an amount of exhaustion proportionate to the intensity of her suffering. After operations, or in very painful diseases, death may be caused apparently by the simple effects of excessive pain. But in death occurring after delivery, or during the course of prolonged parturition, the merely physical pain of labour must never be considered alone; it must be viewed in connection with the physical *shock* of labour as distinct from physical *pain*. Pain affects the cerebrum; shock affects the spinal centre, which does not feel pain. Every severe throe of a protracted labour is a distinct blow to the brain, in so far as it is painful; and it is also a distinct blow upon the spinal centre, as much so as though this organ had actually been struck. The brain is more resilient, as it were, under shock than the spinal centre; and when parturient women die of sinking, it is from the effects of the successive shocks of the pains of labour upon the medulla spinalis rather than upon the cerebrum. This view of the subject leads to important modifications of the treatment of sinking, and the effects of shock in parturition.

There is an unpublished experiment, of great interest, by Dr. Marshall Hall, not performed with reference to parturition, but during his electrogenic researches, which may be brought to bear upon this point. He took two frogs, divided the spinal marrow in both, and then immersed them in a solution of strychnine till they became tetanic. When allowed to become perfectly still, they would remain without spasm if carefully defended against all external excitation. When in this state, one frog was kept in a state of

perfect repose; the other was irritated from time to time, so as to produce strong tetanic action. Of these two frogs, the first would recover perfectly in a few days, the second would die very quickly. There was here no sensation of pain, because the spinal marrow was divided; the exhaustion was therefore purely of a spinal or physical kind. Dr. Marshall Hall himself applies this experiment to the treatment of tetanus; but it has also an application to the physical pains of parturition. When women die from prolonged labour, death occurs, not merely from exhaustion by physical suffering, but from exhaustion caused by the strong muscular contraction of the uterus and its associated organs. The discharge of the vis nervosa and the vis insita in the muscular contractions of each pain has a depressing effect quite distinct from, and independent of, the mere painfulness of each uterine action. Each of the great contractile efforts of labour has an exhausting effect; but when more severe, or continued longer than usual, every returning pain is a distinct *shock*. A woman insensible to pain may still sink, and perish from the spinal shock of labour.

One effect of this shock is in a degree to paralyze the rectum and bladder. Inability to empty the bladder is very common for some days after a severe labour; and in rare cases, the atony of the vesical nerves becomes chronic. This state of the bladder is commonly referred to physical injury of the cervix vesicæ, rather than to any nervous shock, but though local injuries do occasionally occur, causing retention or incontinence of urine, I am convinced that the inactivity of the bladder after parturition is, in the majority of cases, the result of nervous shock. The rectum is similarly and even more constantly affected after labour, and from the same cause. Constipation is so constant, that it is almost a matter of routine to prescribe a laxative two or three days after delivery. I am given to understand that homœopaths leave the bowels to chance, or give globules of arnica,—much the same thing, according to our belief,—and the result is, that the bowels are often not moved until eight or ten days after delivery—a practice which must necessarily predispose the subjects of it to puerperal fever or convulsive attacks. It is as proper to relieve the bowels as soon after labour as it can be done without disturbing the uterus, as it is to relieve the bladder when retention occurs. Not only the shock of parturition, but other forms of excitation, affect the rectum and bladder in the same manner. Excessive sexual excitement produces inactivity of the rectum and bladder, and these organs are among the first to be affected in tabes dorsalis. Such facts are useful, as illustrating the effects of parturient excitement upon the spinal endowments of the other organs of the pelvis.

The lower part of the spinal marrow may be considered as the analogue of the medulla oblongata. In the one, there are congregated the keys of the motor arcs of deglutition, inspiration, expiration, closure of the eyelids, &c., with all their various morbid actions: and in the other, the centres of the motor acts of parturition, defæcation, micturition, and conception, as far as the pelvic

organs are concerned. Probably in the interval between these two congeries of reflex spinal arcs in the medulla oblongata and the inferior medulla spinalis, the cervical and thoracic portions of the spinal marrow are devoted to the reflex arcs belonging to the trunk and the lower extremities. The excitor nerves of defæction and micturition are also in relation with the centre of the reflex respiratory actions in the medulla oblongata, and thus the expiratory actions excited in defæcation and micturition are to be explained. The reflex arcs concerned in parturition are still more extensively diffused. The vagina, the uterus, and the ovaria, are, as we have seen, in relation with the spinal marrow through the medium of the sacral, lumbar, abdominal, and probably also the thoracic intercostal nerves. The actions excited in parturition are numerous in a corresponding degree, and we may compare parturition in some respects to respiration in the libellula, where each segment of the insect is a centre of respiratory action. There is another point of view in which we may consider the reflex arcs of the medulla oblongata and the lower medulla spinalis. In those of the invertebrata which admit of separation into distinct segments, each of which may live as a distinct animal, every ring possesses an independent centre of physical motion. As the vertebræ of the vertebrata, are analogues of the rings of invertebrate animals, there should also belong to each vertebra the representative of a spinal centre. Are not the reflex arcs collected together in the medulla oblongata the spinal centres of the cranial vertebræ? and are not the reflex arcs of the lower medulla the spinal centres to the pelvic rudimentary vertebræ? This view brings the reflex motor arcs of the spinal centre into harmony with the splendid ideas of Oken. Goëthe, and their distinguished successors in archetypal anatomy,

Lancet, July 29, 1848, *p.* 118.

146.—*Note on the Meaning of the Term "Excitation."*—By Dr. Tyler Smith.—The term excitation, in its application to spinal pathology, has a peculiar meaning, very different from sensation or irritation. It may be said that sensation belongs to the cerebral, irritation to the vascular, and excitation to the true spinal system. It cannot be too much dwelt upon, that there is no relation whatever between pain and spinal action, whether pathological or physiological. This one idea alone, when it comes to pervade the whole obstetric art, will, I have no doubt, effect a great change in the practice of midwifery. When a considerable augmentation of the vis nervosa occurs in the spinal system, moderate stimulation frequently excites stronger reflex actions than actual violence would do. In the case of the stomach, we see the act of vomiting more readily excited by tickling the fauces with a feather, than by ruder measures. The part which is the excitor of vomiting may even be ulcerated without exciting this act, so likewise will gentle manipulation of the os uteri, under certain circumstances, produce more excessive motor action than mechanical violence, or even rupture of the organ. This important fact, so capable of salutary application,

has never been more than faintly recognised. The stimulability of the spinal system requires special study with reference to these points; but no advance could be made without a knowledge of the principle of reflex spinal action.

Lancet, Oct. 21, 1848, *p.* 442.

147.—ON STERILITY DEPENDENT ON OOPHORITIS, &c.

By Dr. E. Rigby, Lecturer on Midwifery at St. Bartholomews, &c.

[As this affection is not well known, and has only recently excited much general attention, Dr. Rigby relates a case at length.]

C. C., aged 31, brunette; tall; married six years. One child born about a year after her marriage.

Oct. 18, 1845. Complains of constant and severe pain of both groins, especially the left, with severe dragging pain in the loins and lower part of the abdomen, both of which are increased by stooping, but relieved by standing. The catamenia come regularly and last three or four days; they are preceded for nearly a week by much suffering, which also continues during the whole period; the discharge is very profuse, with clots and exudations; constant urging to pass water, which is turbid; bowels unhealthy; tongue red and dry; has had profuse and painful menstruation from her youth. Since the birth of the child, the pain has been considerably relieved, although the discharge has been increased.

Examination per Vaginam.—Nothing wrong about the os or cervix uteri; the uterine sound passes easily to the full distance (2½ inches) without pain, but is followed by profuse discharge of blood.

Examination per Rectum.—High up in the direction of the left ovary a hard body can just be reached, which is acutely sensitive to the touch, and which she describes as the centre of her pain.

℞. Ung. antimonii pot. tart. inguini sinistro omni nocte applicand.

℞. Pil. hydrarg. chlorid. co. gr. v., alternis noctibus.

℞. Sodæ potassio tart. ʒj. o.m.

25. Catamenia appeared on her return home last week; a copious eruption has come out on the left ovarian region, which is very sore; the pain on passing fæces and on sitting down is not diminished; evacuations more healthy; appetite bad. Rep. pil. and sodæ potassio tart.

℞. Acidi nitr. dil. ♏xv. ex infus. gentianæ comp., ter die.
Hirundines vj. ovario sinistro.

Nov. 1. The ointment has produced much irritation and pain, so that she cannot say whether the original suffering is relieved; the eruption discharges freely; appetite better; bowels rather confined; catamenia still continue. The leeches do not appear to have afforded much relief. Rep. med.

8. Eruption still very sore, and discharges freely; the ovarian pain, the irritability of the bladder and of the rectum, are distinctly

less; catamenia returned with less pain; fewer coagula and exudations; appetite better; bowels regular. Rep. med.

15. Continues to improve in her health; pain of left groin diminished, but considerable suffering is produced on examination in the direction of the left ovary. Rep. med. Hirudines vj. ovario sinistro.

22. Leeches did not bleed very well, but she felt easier and better afterwards; general health much improved; bowels open about three times a day; frequent desire to pass water: no tenderness in left ovarian region. Rep. med.

29. Feels better; was in great pain four days ago, and observed some blood with the fæces, to the amount of two or three tablespoonsful, since which she has felt better; on examination this morning some blood was observed upon the finger; the ovary was not so tender. Rep.

Dec 27. Feels much better this week, but still has occasional pain; has been suffering from slight catarrh during the last week; catamenia appeared at the beginning of the month, with but trifling pain; no coagula or exudations; bowels confined.

℞. Pil. hydr. c. coloc. gr. x. h.s.p.r.n.

℞ Aquæ menthæ viridis, aquæ destillatæ, aa. ʒvss.; acidi sulph. dil., ♏ x.; syrupi rhœados, ʒss. M. ft. haustus ter die sumendus. Sodæ potassio tart. ʒij. o.m.

Jan. 3, 1846. Feels well; expects catamenia in about a week. Rep.

24. Catamenia have not yet appeared; she has no pain in the groins, but slight pain in the back; bowels open; tongue tolerably clean. Rep.

Feb. 14. Thinks that she is between two and three months advanced in pregnancy; feels pretty well in general health, but is much troubled with morning sickness; the breast presents a well marked areola, the follicles are enlarged, and the nipple œdematous. Rep.

28. Health improved, but the tongue is red, with a white fur; the bowels are healthy but relaxed.

Haust. sodæ tartratis ter die. ℞. Pil. hydrarg., ext. hyosc., aa. gr. v. alternis noctibus. Rep. sodæ potassio tart. o. m.

April 11. Has continued to improve slightly in health, but has had considerable irritation of the bladder this week, with pain on passing water.

25. Pregnancy advancing favorably; let her pay strict attention to the state of her bowels. Rep. med.

May 2. Complains of much irritability of the bladder; fancies herself harder than natural, and that the supposed movements of the child are more like throbbings.

Examination per Vaginam.—Os uteri high up in the hollow of the sacrum, round, soft, and closed; cervix barely a quarter of an inch in length. I think I can distinguish a slight trace of ballottement. Rep.

9. Pregnancy progressing; irritability of bladder; urine high colored.

℞. Liq. potassæ ℥xv. ex. inf. aurant. co. bis die.

June 27. Feels well. Rep.

Sep. 16. Was delivered this day of a healthy living child; the whole course of the labour was perfectly favorable, and she is doing well.

It is difficult, and sometimes impossible, to trace the history of these cases to their origin; but from the fact of her having suffered from dysmenorrhœa up to the time of her marriage or pregnancy, and never afterwards, we have reason to conclude that the canal of the cervix, or os uteri, had been unusually small, and produced considerable resistance to the free discharge of the catamenial fluid. That this form of dysmenorrhœa is not necessarily a barrier to conception is a well-known fact, although it is equally certain that sterility is the more frequent result; but, when pregnancy does occur under these circumstances, the expulsion of the fœtus, even when very premature, produces such an amount of dilatation in the contracted canal as effectually to remove the cause of dysmenorrhœa. I have long since (Feb. 15, 1845) pointed out the fact, that obstructive dysmenorrhœa, when of sufficient severity and duration, is frequently attended with ovarian inflammation, which may be reasonably accounted for by the severe struggle and painful efforts which the uterus is excited to make at the menstrual periods, for the purpose of expelling the catamenial fluid which has accumulated within its cavity. This state of uterine excitement must be a source of considerable irritation to the ovaries, occurring at a time when they are known to be highly congested, and their vessels in a condition near akin to that of inflammation. That the uterus suffers great distention from the menstrual fluid accumulated within its cavity is known by the fact that the patient herself will frequently feel it like a hard painful ball behind the symphisis pubis, which disappears as soon as the discharge comes on. In a great many instances I have reason to know that the uterus never entirely clears itself of the catamenial fluid, but remains full for many days afterwards, and probably retains a certain quantity until it is expelled at the next period, as in many of these cases the moment a dilator is introduced, a quantity of brownish-red shiny discharge comes away, the characters of which are also evident from its peculiar smell. I may also add that, in almost all cases of long-standing obstructive dysmenorrhœa, the cavity of the uterus is considerably enlarged, being frequently half and sometimes a whole inch longer than natural, and allowing the sound to move about with an unusual degree of freedom. The blood which followed the introduction of the sound in the present case was probably merely from the circumstance of the catamenial period having just arrived.

I had hoped from the irritability of the bladder, that the anterior portion of the ovary was the part chiefly affected, and applied the tartar-emetic ointment accordingly; but the little relief it produced, the pain on defecation and sitting down upon a hard seat, as also the results of examination *per rectum*, proved that the posterior half of the gland was also implicated. The second application of

the leeches appears to have given considerable relief, and the discharge of blood from the bowel, which followed a few days afterwards, was attended by a similarly beneficial effect.

Medical Times, July 8, 1848, *p.* 152.

[One of the most prominent symptoms in the following case was *profuse and long continued menorrhagia.* Dr. Rigby observes,]

I know no form of menorrhagia where the discharge is more profuse or the disease more obstinate, than when it is dependent on an inflamed state of one or both ovaries; and here again I may observe that in by far the majority of cases, it is the left ovary which is affected—indeed, it is quite an exception to the rule when we find that it is the right one. It is difficult always to account for these peculiarities, and we are apt to theorize in attempting their explanation; but it has frequently struck me that a loaded state of the sigmoid flexure of the colon, from the pressure which it must exert on the neighbouring parts, would render the left ovary more liable to congestion by obstructing its returning circulation. As in the case above alluded to, which had also been for many years of her life one of obstructive dysmenorrhœa, the history of the symptoms and the examinations distinctly prove the existence of ovarian inflammation; and its relief by appropriate treatment also shows that this affection was the cause of the menorrhagia, which ceased as soon as the oophoritis was relieved. The following case not only shows that sterility must result under such circumstances, but also that impregnation may occur even after long standing oophoritis and menorrhagia, when once those conditions are removed.

E. L., aged 22: tall, gaunt, and emaciated; pale and anemic.

July 25, 1845. Complains of frequent attacks of vaginal swelling and flushing; bowels habitually costive; has a barking cough; tongue pale and glossy; throat relaxed; bad taste in the mouth, and much gastric derangement; pain of sacrum increased by the passage of solid fæces; pain of left thigh, which is slightly swelled to the foot, requiring her to wear a larger shoe.

She first menstruated at the age of seventeen, from which time she has been constantly subject to menorrhagia. She also dates from this period the acute pain which she feels in the hollow of the sacrum on the passage of solid fæces. In October, 1843, she consulted a practitioner, who leeched the os once, and blistered the sacrum. After being under his care for six months the discharge stopped, and appeared only at irregular intervals of about three months, until May, 1844, when it continued in an irregular manner until the 20th of July. These catamenial discharges were attended with severe pain of back and pelvis, and slight exudations. In January, 1845, she consulted another physician, who considered that the menorrhagia depended in great measure on a torpid liver, for which he accordingly treated her, and produced some relief.

Examination per Vaginam.—Os externum small and intensely tender; the vagina is evidently swollen; os uteri is situated more

backwards than usual, it is soft but not round; the cervix is short, and the anterior surface of the uterus is felt firm and hard, and inclining towards the bladder; no part of the uterus within reach is peculiarly tender to the touch.

Examination per Rectum.—The finger produces no pain until it reaches the left ovary, which seems nearly in the upper part of the hollow of the sacrum; it feels like a large nut, and is exquisitely painful to the slightest touch, so that I could not ascertain its real size, or how far it was moveable; no pain is felt in the direction of the ovary by pressing on the left groin, nor is any motion communicated to it by doing so; nothing abnormal is to be detected on the right side of pelvis.

℞. Pilulæ hydrarg. chloridi co., extr. hyoscyami, aa. gr. v. o.n.

℞. Acidi nitrici dil.,tinct. hyoscyami, aa. ʒij.; infus. sennæ co., ℥iijss.; infus. gentianæ co., ℥iv. M. ft. mist. cujus sumat. cochl. magn. ij. ter die. Hirudines vj. ovario sinistro.

July 28. Leeches were applied on the 26th, and bled well, with much relief; bowels have been opened three or four times daily, and the evacuations are much improved in appearance and odour; pain and swelling of the left thigh and foot have subsided; tongue better; her general appearance is much improved; the face has lost its sallow tinge; the pulse is good; there is no discharge. Pergat.

Aug. 2. No discharge; health improved. As there is still considerable tenderness of the ovary when felt *per rectum*, some leeches were again applied, of which only three took and bled well.

℞. Pil. hydr., extr. coloc., extr. hyos., aa. ℈j. M. ft. pil. xij. sumat. ij. horâ somni.

℞. Essentiæ sarzæ comp., ʒj ter die ex liquore calcis c. lacte.

℞. Liq. plumbi diacet., liq. opii sedativ., aa. ʒij.; aquæ destill. ℥viij. M. ft. lotio.

4. The subsequent bleeding was less than before. She remarks that the pressure of the tube against the ovary did not produce half the amount of pain which it had done hitherto. Until now she has not had a healthy appetite for plain food. The bowels are opened by one pill only. Rep. mist. sarzæ ex liq. calcis c. lacte. Rep. lotio.

℞. Ferri sulph., gr. ij.; extr. coloc. co., gr. iij. M. ft. pil. ij. h. s.s., mitte. xij. Seidlitz powder in the morning.

8. Very much improved in health, and good looks; no pain or discharge; the glossy state of the tongue is fast disappearing; she walks with ease; is about to return home. In case the pills should act too much upon the bowels I have also given her the following prescription:

℞. Ferri sulph., gr. ij.; extr. gentianæ, gr. iij. M. ft. pil. j. o. n.s. Rep. alia.

[She continued the alterative plan of treatment, and in a few months afterwards she became pregnant, but miscarried. Dr. Rigby remarks,]

It is difficult to trace the cause on which this state of oophoritis

depended, but there is good reason to suppose that it was contemporary with the appearance of catamenia at the age of seventeen. The symptoms of oophoritis varied somewhat in this case from the ordinary course, and depended upon the position of the ovary, being much more backward than usual, and almost approaching the hollow of the sacrum; hence she had none of the inguinal pain which is so frequently observed in these cases, but it was confined to the region of the sacrum, as is usually seen in cases of retroversion, and was necessarily greatly increased by the passage of fæces down the rectum. This displacement of the ovary downwards and backwards into the recto-vaginal pouch, when in a more marked degree, forms one of the most agonising affections with which I am acquainted; the paroxysms of suffering are really frightful, and whilst they last the patient is nearly wild with torture. In three or four cases which I have seen (and of which I regret to say I have taken no notes except of one) the ovary has been found lower than usual, and approaching very nearly to the central line of the sacrum.

The slightest touch produces severe pain, of that sickening and intolerable character which pressure on the corresponding organ of the male produces, especially when inflamed. For want of a better name, I have called it prolapsus of the ovary, but a more correct appellation might probably be found. In the present case, therefore, no movement of the ovary was produced by pressure in the left groin, while the finger of the other hand was examining *per rectum*, but the anterior wall of the uterus was felt inclining more than usual towards the bladder, as in anteversion, from the uterus being probably pushed somewhat forwards by the ovary behind. The attacks of heat and swelling of the vagina, and the great tenderness of the os externum, were connected with considerable derangement of the assimilating organs, and form part of a series of affections which I have endeavoured to describe under the term of uterine gout—the general state of the circulation indicating a close resemblance to that of it in a gouty diathesis, but the affection localizing itself on the uterus and organs belonging to it.

Medical Times, Aug. 26, 1848, *p.* 265.

[In the next case reported by Dr. Rigby the sterility appeared to be owing to a *contracted state of the os and cervix uteri*, attended, as this state often is, with ovarian irritation or inflammation. The patient was 25 years of age, and had been three years married. The principal symptoms were irritability of the bladder, and severe pain in the right groin and front of the right thigh, with exacerbations at the menstrual periods.]

Examination per Vaginam. — Os externum very small; vagina seems lax; cervix uteri hard and very slender; I feel a minute crevice at its extremity, but can only presume it to be pervious by the history of her symptoms.

℞. Hydrarg. c. cretâ, pulv. ipecac. co., aa gr. xv. M. ft. pil. vj. Sumat. ij. omni nocte. Haust. rhæi c. magnesia o.m.

℞. Ung. antim. potass. tart., ℥j.; infricetur paululum om. nocte inguini dextro.

19. Has applied the ointment effectually; the eruption was at its height on the 14th; the ovarian symptoms have diminished, but there is still irritability of bladder. Experienced her first warning pain on the 13th that the catamenia were approaching, which was the day she expected them, but the pain lasted only two hours. It returned every day afterwards, increasing in severity, and accompanied with swelling of the abdomen, until last night, when, in spite of suffering, she determined to go to a ball, and in the act of dancing, which gave great pain, the discharge came on. She considers that the catamenia have appeared this time more easily than usual.

℞. Acidi hydrochlor. dil., acidi nitrici dil., aa. ʒj.; tinc. hyosc., ʒij.; syrupi aurant., ℥ss.; infus. gentianæ c., ℥vij. M. ft. mist. cujus. sumat. cochl. magn. ij. ter die.

23. Quite free from pain. Pergat.; let her rub some linimentum hydrarg. on the right groin every night.

April 20. Has passed the menstrual period with less pain; in other respects feels quite well; has kept up a little irritation in the right groin with the ointment.

22. On passing the speculum a little prominence with a very small orifice came into view, admitting a bougie with some difficulty; a dilator slightly curved was then introduced, and the os uteri dilated to about a third of an inch, without pain, upon which a slight leucorrhœal discharge issued from it; she was directed to lie quiet for the rest of the day; towards evening she had a little pain of the back.

May 4. Appears perfectly well.

Examination per Vaginam.—Os uteri distinctly more open.

To allay pain at the next catamenial period, I have ordered her—

℞. Extracti lactucæ, extr. lupuli. camphoræ, aa. ℈j. M. ft. pil. xij.; sumat. ij. incipiente dolore et rep. omni bihoris si opus sit.

16. Her report by letter of the last catamenial period is as follows:—"I have felt much pain since I saw you, which was greatly soothed by the pills. The discharge came on this morning in a rush, very suddenly, but now goes on moderately. I still feel in great pain both in back and stomach."

August 10. Has just passed a menstrual period with little of the precursory pain, although she suffered a good deal at the time. Bowels confined.

℞. Extr. aloes aquos., ℈ij.; extr. hyoscyami, ℈jss.; masticlies, gr. xij. M. ft. pil. xx.; sumat. j.—ij. h.s.

This case illustrates the fact which I have repeatedly alluded to, viz., oophoritis or, at least, ovarian irritation is a frequent attendant upon that form of dysmenorrhœa which arises from a contracted os and cervix uteri; the continued repetition of uterine irritation at the catamenial periods, arising from the efforts which the uterus is excited to make for the purpose of expelling the fluid which has been secreted into its cavity, after a time brings on an irritable state of that organ

(the ovary), which is so closely connected with the process of menstruation, and in the present instance appears to have been converted into inflammation by the sudden suppression of the catamenia from drinking a draught of cold fluid during their appearance. The amount of obstruction to the discharge of the catamenia was evidently very considerable, as was indicated, not only by the pain and gradually increasing uterine efforts, but also by the evident enlargement of the uterus from the accumulation of fluid in its cavity. As the distension of the uterus increased, it was stimulated to stronger efforts of contraction, which also being more effective in proportion to the amount of accumulated fluid which it had to contract upon, at last produced a dilatation of the os and expelled its contents. Hence, therefore, the discharge did not appear until the paroxysms of pain had risen to a certain intensity, and then it came suddenly with a gush and greatly relieved her.

Medical Times, Sep. 9, 1848, p. 302.

148.—ON INFLAMMATION AND ABSCESS OF THE UTERINE APPENDAGES, IN THE NON-PUERPERAL CONDITION.

By Dr. J. H. Bennet, Physician-Accoucheur to the Western Dispensary.

[Dr. Bennet observes that the subject of pelvic inflammation has received much less attention in this country than in France; and that it has been studied in both countries, only in relation to the puerperal condition, with which it has been supposed to be almost always connected. But he has found that, as pointed out by Gendrin, this disease does frequently occur in the non-puerperal state, presenting however certain peculiarities. He says:]

In the puerperal form of the disease, the uterus itself is nearly always considerably implicated; the inflammation of the ovaries, Fallopian tubes, or cellular tissue, has a tendency to extend to the peritonæum, and to the cellular tissue lining the pelvic cavity; adhesions to the abdominal parietes, abdominal perforations, and even death, not unfrequently occur. In the non-puerperal form, on the contrary, the disease has a tendency to limit itself to the tissues primarily attacked; peritonitis, abdominal perforations, and a fatal termination, being very rarely met with.

[Dr. Bennet first refers to the anatomy of the parts concerned.]

The peritonæum in the female, after covering the posterior surface of the bladder, is reflected on the uterus, covers the anterior surface of the body of the uterus, its posterior surface, and is then again reflected on the rectum. As it passes from the anterior to the posterior wall of the uterus, the peritonæum forms two wide folds, which contain between them the Fallopian tubes, the ovaries, and the round ligaments. The two folds of the peritonæum, which

thus, by their juxta position, constitute the lateral ligaments, are separated one from the other, as also the organs which they contain, by a certain amount of filamentous cellular tissue. This cellular tissue is connected with the extra-peritonæal cellular tissue of the pelvis, although in a great measure distinct from it, and deserve more attention than it has hitherto received, either from anatomists or pathologists. From its cellular nature, it is prone to inflammation, and, consequently, it plays a most important part in inflammatory disease of this region. Its physiological use, no doubt, is to allow the folds of peritonæal membrane to separate and glide one over the other, when the uterus increases during pregnancy. The structure of the ovaries is fibro-cellular, whilst the Fallopian tubes present a central mucous canal, and a cellular investment. Both these organs, therefore, are liable to be attacked by inflammation, as well as the cellular tissue which surrounds them.

We have thus, in the cavity of the pelvis, immediately adjoining the uterus, above the pelvic fascia, between the peritonæal folds, but external to the peritonæum, in contact with the bladder anteriorly, and the rectum posteriorly, a space containing a mass of filamentous cellular tissue—a tissue peculiarly liable to inflammation —and various other organs, also, by their structure, more or less exposed to inflammatory disease. The history of non-puerperal inflammation, in the space thus limited, flows so regularly from the laws of pathology, as applied to the above anatomical data, that it is a subject of surprise to me, that it should not hitherto have been clearly made out.

Seat.—Inflammation occurring in the region which I have described may attack the cellular tissue alone, in which case it is a purely phlegmonous inflammation; or the ovaries alone; or the Fallopian tubes alone; or it may attack all together. In either case, the peritonæum itself may or may not be compromised. Owing to the anatomical localization of these organs, to their lying in the same anatomical region, and their having the same anatomical relations, the symptoms and history of inflammation in them are so similar, that it would be difficult, if not impossible, and certainly useless, to attempt to describe inflammation in each separately. I shall therefore treat generally of inflammation in this region, pointing out, as I proceed, any difference which may exist, and which is really susceptible of being appreciated.

The peritonæal folds themselves are very seldom attacted in non-puerperal inflammation of the uterine appendages. When inflammation occurs in this region, *after* parturition, there is a great tendency in the peritonæal membrane to take on the inflammatory action, as is the case when the uterus itself is then the seat of inflammation. In the unimpregnated non-puerperal condition, on the contrary, there is very little tendency to inflammation in the peritonæum, and the organs contained between its folds may remain inflamed during months or years, without its becoming compromised. This is a singular pathological fact, but one which is equally

true when applied to inflammatory affections external to the peritonæum, in any other point of the pelvic and abdominal cavities. Even when peritonitis does complicate the attack in the non-puerperal state, it seems rather to have a tendency to localize than to extend its action, the contrary to which obtains in the puerperal condition.

In non-puerperal inflammation of the lateral ligaments, the disease is very evidently limited, in most instances, to the cellular tissue, and to the organs contained within them, and does not extend to the free cellular tissue of the pelvic cavity. This circumstance induces me think that in the puerperal form the disease is, generally speaking, similarly limited at first; although such is not the prevailing opinion.

[The causes of the disease here treated of, are the same as those of acute metritis, arrested menstruation being one of the principal. Its symptoms, too, resemble those of the latter affection; but present, on a close examination, the following points of distinction.]

The pain is greatest at a little distance from the median line, in the right or left ovarian region, more frequently in the latter. If the patient can bear pressure, and the abdominal parietes are not too thick or too rigid, a deep-seated swelling or tumour is frequently perceived in the ovarian or iliac region. Sometimes the tumefaction is perceptible to the eye from the first. The presence, however, of these symptoms is seldom sufficiently conclusive to enable the practitioner to distinguish inflammation of the lateral ligaments from acute metritis.

In order to clear up the doubt that otherwise must necessarily remain respecting the true nature of the disease, it is indispensable that a careful digital examination should be made. This is, in my opinion, effected most satisfactorily, the patient lying on her back, the knees elevated or flexed. The forefinger being introduced into the vagina, the elbow should be depressed, so that in penetrating it may adapt itself to the axis of the pelvis. The pulp of the finger may thus be carried underneath and round the cervix, which should be carefully and accurately examined. By then pushing back with the finger the cul de sac of the vagina, where it is inserted on the cervix, the state of the body of the uterus, of the adjoining uterine organs, and of the pelvic cavity generally, may be ascertained with extreme accuracy, especially if the left hand is applied, at the same time, over the lower hypogastric region, above the pubis.

When this mode of examination is adopted in the healthy female, the bladder being previously emptied, the finger may push the vaginal cul de sac before it on the side of the uterus for an inch or two, and may be made to approximate within a very slight distance of the hand applied externally, and that without giving the slightest pain. The practitioner feels, with the greatest distinctness, that his fingers are only separated from each other by the thickness of the abdominal parietes, and by tissues (the lateral

ligaments) which present no density or resistance. When the tissues contained in the lateral ligaments, cellular tissue, ovaries, or Fallopian tubes, are inflamed, thickened, and indurated, the state of things is very different. On attempting to push back the vagina, on the side of the uterus, we find an unusual resistance. The vaginal cul de sac has disappeared, and resting on the side of the cervix and body of the uterus there is an indurated swelling, very different from what obtains on the other or healthy side, supposing disease to exist on one side only, as is most frequently the case. Pressure on the indurated tissues is attended with very great pain, and there is a marked increase of the natural heat of the parts. On carrying the finger behind the inflamed tissue, whilst the abdomen is gently depressed with the left hand, we ascertain that the inflammatory tumour, situated between the hands thus placed, is moveable and quite distinct from the parietes of the pelvic cavity. This tumour is generally applied, as it were, to the side of the uterus, so that it only constitutes one mass with that organ. Thence it is, no doubt, that inflammation in the lateral ligaments is generally confounded with metritis, even when a digital examination is resorted to, and the presence of an inflammatory swelling recognised.

If, notwithstanding a careful vaginal examination, there are doubts as to the nature and extent of the swelling, the uterus and annexed organs may also be examined with benefit digitally, through the rectum.

Lancet, July 15, 1848, *p.* 61.

Acute metritis, in the non-puerperal state, generally ends by resolution or by passing into the chronic stage; suppuration is a comparatively rare event, owing to the very small quantity of cellular tissue existing in the structure of the uterus. Inflammation in the lateral ligaments, on the contrary, generally ends in suppuration. It is, in reality, in most cases, a purely phlegmonous inflammation; and the great tendency of phlegmonous inflammation to terminate by suppuration is an axiom in pathology. Although much less liable to end in suppuration than inflammation of the cellular element, ovaritis is also more frequently followed by suppuration than acute metritis. Suppuration may, consequently, be looked for in the course of a few days from the onset of the inflammation, unless the latter has been checked by early and energetic treatment. A prepared and attentive observer may recognize suppuration having taken place by rigors and other symptoms that accompany internal suppurations, by the lull that follows in the general and local symptoms, and sometimes by a deep-seated sensation of fluctuation perceived through the vagina, or even through the abdominal parietes.

Once the pus has formed, being closely confined in the region which has been described, if it is not absorbed, as is sometimes, although rarely, the case, it endeavours to find a vent. Adhesive inflammation connects the phlegmonous tumour with the vagina,

rectum, abdominal parietes, or bladder; and in the course of a variable period, but generally before the acute inflammatory symptoms have subsided, the pus finds an exit in one or more of these directions. It is almost invariably by the upper portion of the vagina, or by the rectum, that the pus escapes in the non-puerperal form of inflammation. I can scarcely recal to mind an instance in which I have seen the pus make its way through the abdominal parietes in non-puerperal inflammation, except in a case or two in which there was a serious and permanent cause of disease in the uterine appendages, such as suppurated tubercles. When, however, this *is* the case, it is only after the inflammatory action has lasted for weeks or even months, that the pus reaches and perforates the abdominal integuments; and nearly always, long before the external perforation takes place, it has found its way out of the pelvis through the vagina or rectum. The emptying of the abscess into the bladder is of still less frequent occurrence, and is, likewise, generally preceded by the formation of a vaginal or rectal opening. Sometimes the abscess will open into all these directions successively. In some instances the pus appears to escape from the neck of the uterus, as if the abscess had emptied itself into the cavity of that organ. I think, however, that when this is the case, the real explanation is, that the phlegmonous tumour of the uterine appendages is complicated with metritis; and that an abscess, formed in the walls of the uterus, has thus opened into the cavity of the organ. An abscess primitively formed in the lateral ligament would be scarcely likely to work its way through the thick, unyielding wall of the uterus; at least not unless the uterus participated in the inflammatory action.

Generally speaking, as I have stated, the abscess opens into the vagina or rectum, or into both. That such should be the case is at once accounted for, when we consider the position of the phlegmonous tumour with reference to these organs, with which it is in immediate contact. The perforation mostly occurs during some exertion, such as a fit of coughing, or the act of defecation, and in so latent a manner that it is not perceived nor mentioned by the patient, unless her attention is previously directed to the point by her medical attendant. This, however, is seldom the case in non-puerperal abscesses, as he is not himself aware of the nature of the disease, and believes his patient to be merely labouring under metritis. The passage of even a considerable quantity of pus from the vagina is generally thought by the patient to be only an increased flow of the whites; and the escape of pus along with the fæces is still less likely to attract her attention. Women, from a natural feeling of delicacy, require to be closely questioned with regard to uterine symptoms, seldom giving any information respecting themselves spontaneously. Sometimes the perforation is accompanied by a bursting sensation, of which the patient is perfectly sensible. It may take place within a few days of the onset of the inflammation, or it may be weeks before it occurs. The quantity of pus passed varies from a few drachms to half a pint, or more.

It is owing, no doubt to the formation and escape of the purulent collection from the cavity of the pelvis thus taking place in so insidious and latent a manner, that unless carefully looked for, it is neither perceived by the patient nor her medical attendant, that these cases have hitherto been generally overlooked, and that the more severe forms and instances of the disease have alone been recognized and recorded.

The escape of the pus through the vagina is the most favourable manner by which it can make its way externally. Its presence, no doubt, occasions a certain amount of irritation of the mucous surface over which it passes, but that irritation is scarcely ever considerable. The next most favourable termination is the penetration of the pus into the rectum. When this occurs, there is generally great irritation of the intestinal mucous membrane. Either the ulcerative inflammation of the coats of the rectum, or the presence of the pus, seems to be attended, in most instances, by a considerable degree of dysenteric irritation of the lower bowel, which sometimes lasts several days. In both cases, the openings by which the pus penetrates into the rectum and vagina are generally small. In the vagina, we cannot frequently detect the precise spot at which the pus has perforated the parietes; nor is it easier to discover it with the speculum. An instrumental examination, however, is scarcely ever necessary, or even admissible, in the acute stage of this disease, owing to the tenderness of the vagina and internal tissues.

The escape of the pus by the parietes of the abdomen is always preceded and accompanied by considerable inflammatory swelling, and inflammation of the surrounding tissues, and of the abdominal walls. The phlegmonous tumour is a long while in reaching the exterior, and gradually involves all the structures which separate it from the skin; thus giving rise to an extensive inflammatory tumour of a very painful and distressing nature. The sympathetic and reactional symptoms are necessarily very severe in these cases. But the entire series of symptoms, both general and local, which attend the cases in which abdominal perforations occur, may be considered as more especially characteristic of the puerperal form of the disease, as they are scarcely ever met with apart from it.

When the pus has fairly escaped from the pelvic cavity, a marked change is observed in the state of the patient. There is a decided lull in all the symptoms. The deep-seated pelvic pains diminish, as also the abdominal tenderness and swelling, and the febrile symptoms rapidly subside. In very many cases the improvement is so rapid, especially when the abscess has opened by the vagina, that the patient is soon considered quite convalescent, and in hospital practice discharged as cured. This improvement, however, although real, is very deceptive with reference to the future. On making a careful digital examination of a patient so situated, we find that the tumour on one side of the uterus is exceedingly diminished in size, that it is no longer so sensitive to the touch, and that there is less heat and tenderness in the upper part of the vagina, and

on the side which is in contact with the phlegmonous swelling. But although thus less in size and less inflamed, the inflammatory tumour is, nearly always, still perceptible. Part of it has melted and suppurated, but part remains in a state of semi-chronic inflammation and induration, as is usually the case with suppurated phlegmonous tumours.

The symptoms which pertain to a chronic uterine inflammation will, consequently, be found *still* to exist, on a close examination. Pain, heaviness, and bearing-down deep in the pelvis; tenderness, pain, and often swelling, in one or both of the ovarian regions; pain in the lower part of the back, inability to stand or walk for any time, and especially to go up and down stairs—these symptoms may be more or less apparent.

The orifices by which the pus has escaped into the vagina or rectum generally remain open, and thus allow the pus to discharge itself as it is formed. Sometimes, however, they close in the course of a few days. When this is the case, if pus continues to be formed, it collects again, forms an abscess, and, before it again escapes, by ulcerative inflammation, reproduces, generally in a mitigated form, the acute inflammatory symptoms previously experienced.

Were these inflammatory tumours not exposed to the influence of perturbing causes, they would, no doubt, in most instances, gradually become absorbed, and the relapses just described would be slight and unfrequent. Such, however, unfortunately, is not the case; at least in a large proportion of the cases met with. The molimen hæmorrhagicum which accompanies menstruation, or any other exciting cause, may arouse the dormant inflammatory action in the still indurated and tumefied tissues. When this occurs, the acute symptoms of the disease reappear; matter again forms, and forces its way into the vagina or rectum; in the latter case, again giving rise to dysenteric symptoms.

These exacerbations, or returns of acute disease, become less and less frequent, as the inflammatory tumefaction of the uterine appendages diminishes, and as the diseased tissues return to their natural condition. The disease, however, is essentially chronic: and a female who has suffered from inflammation and suppuration of the lateral ligaments, even in its mildest form, may be from several months to one or more years, before all trace of local inflammation has disappeared, and before she can be said to be radically well. During this lengthened period, she is never quite free from symptoms of uterine irritation, and remains subject, at intervals more or less distant, to the acute exacerbations which I have described.

Whilst thus suffering, the menstruation is always more or less modified. Sometimes it is absent for months; sometimes its appearance is only delayed for a few days or weeks. Generally speaking, the menstrual period is curtailed, the quantity of blood lost is diminished, and great pain is experienced during the entire period of the menstrual secretion.

Long before the local tenderness gives way, and before the patient can be pronounced well, all traces of induration or swelling,

as appreciated by the touch, either through the vagina, or through the abdominal parietes, will be found to have disappeared. The formation and escape of matter comes to a close at even a much earlier period, before the induration has melted and ceased to be recognisable to the touch.

Such is the succession of morbid symptoms observed in the milder or non-puerperal form of inflammation of the uterine appendages. Although generally overlooked, owing to a want of knowledge of the pathological facts which these symptoms represent, this affection is, in reality, as easy to recognize and to follow, in the evolution of its phenomena, as many better known diseases.

[The prognosis, Dr. Bennet observes, must be guarded, owing to the tedious nature of the disease, especially if suppuration has taken place. As to the diagnosis, he remarks:]

The diseases with which inflammation of the lateral ligaments may be confounded are, more especially, acute and chronic metritis, and inflammation of the iliac fossa. To these we may add inflammation and abscess of the abdominal parietes, metro-peritonitis, ovarian cysts and tumours, and extra uterine pregnancy. The diagnosis must be established on the attentive comparison of the symptoms of each of these diseases with those which the patient presents. If the local examination is carefully carried out, there is seldom any great difficulty in making a correct diagnosis, even when the patient is seen for the first time in the secondary stage of the disease, as not unfrequently occurs.

Lancet, July 22, 1848, *p.* 96.

149.—TREATMENT OF ULCERATION OF THE OS AND CERVIX UTERI WITH THE SOLUTION OF GUN-COTTON.

By Dr. T. R. Mitchell, Master of the South-Eastern Lying-in Hospital Dublin.

[After describing the ordinary symptoms of this affection, Dr. Mitchell says,]

The *rationale* of treatment in these cases consists in applyin a remedy which will form an artificial covering to the ulcer, and permit of the healing process to go on underneath. The application generally employed is nitrate of silver, either solid or in solution, applied through the speculum to the part. Persons who have extensively used this remedy are aware that it sometimes acts as a caustic as well as by forming an eschar, and that its caustic power is sometimes too great. How often has it happened to me to find acute symptoms arise when I only desired a protective power to be exerted. Reasoning upon the *modus curandi* of this remedy, it struck me that if I could apply an artificial coating to the ulcer which would not possess any irritating properties, that a great point

would be gained in the treatment of these distressing affections. Having proved the value of gun-cotton solution in various cases of external lesions, I thought it would be of use in those under consideration. I have now given it a fair and impartial trial, and have no hesitation in recommending it as a most useful remedy.

The following is the method I have adopted in its application:—The patient being placed upon her left side, and the speculum introduced, the ulcerated surface is to be wiped dry with a succession of pieces of soft lint until all adherent mucus is removed; a camel's hair pencil dipped in the solution is then to be rapidly applied to the ulcerated surface, and allowed to dry, which will occupy a couple of minutes—a second, third, and fourth coating, if necessary, can thus be applied; the first coating is followed by a slight burning sensation caused by the ether, followed by a sensation of coldness from its evaporation. The application requires to be renewed at the end of forty-eight hours, as the secretion collects underneath the varnish, and detaches it. In cases of simple abrasion three dressings have proved successful: in more obstinate cases, and where large granulations have been present, I have used nitrate of silver, acid nitrate of mercury, and potassa fusa first, and then applied a varnish of the gun-cotton over the eschar, and have succeeded in curing extensive ulcers of the cock's-comb variety in half the time I have been able to succeed without the solution.

In cases of vaginitis without ulceration, I have found the painting of the walls of the vagina with the solution most beneficial. The difficulty, however, is to dry it well, which requires time and trouble, but in my mind the result amply repays both, the friction of the surfaces is prevented, and the amount of suffering, pain, and inflammation consequently much diminished.

Dublin Medical Press, Oct. 4, 1848, *p.* 209.

150.—*On the Frequency of Ulceration of the Cervix Uteri.*—By Dr. Ashwell.—I may remark, that Dr. Bennet regards 'ulceration of the cervix as common with pregnant women.' This, probably, if at all, is only true of the lowest class of females. My own experience is entirely opposed to such an opinion, as well as to another of the same author, 'that laceration followed by ulceration, is a frequent occurrence in the first stage of labour,'—a statement entirely at variance with the acknowledged fact, that nature has the power to effect the completion of her own work. Nor can I regard with more favour the conclusion, 'that the state of pregnancy predisposes to inflammation and ulceration of the cervix uteri.' It may be so in prostitutes, and patients suffering from primary and secondary syphilis, in whom pregnancy is happily not a common event; and perhaps it may not be regarded as savouring too much of criticism, if I say that many of the observations of the French writers, and even some of our own countrymen who adopt the sentiments of the Parisian school, must be received with great caution in these matters. They are too prone to generalize from the observations they are permitted to make on one section, and that the lowest, in female

society. Thus it happens, that the morbid peculiarities of women of abandoned habits, are not unfrequently regarded as attaching to the far more numerous class, with whom they have nothing but their sex in common. Hence also the too indiscriminate, and often injurious use of the speculum—the abuse of which has thus far delayed its necessary and justifiable adoption in this country.

Lancet, Sep. 9, 1848, *p.* 291.

151.—ON TURNING AS A SUBSTITUTE FOR CRANIOTOMY.

By Dr. R. Collins, Dublin.

[Dr. Robert Collins, of Dublin, in a letter to Professor Simpson with reference to the practice advocated by the latter, says:]

This is unquestionably a dangerous doctrine, more especially when we consider the great facilities which now exist for throwing the patient into a state of insensibility, which deprives her of the power of either expressing or feeling, the grievous injuries she may sustain from the most barbarous efforts of the unskilled practitioner, the after-consequences of which must, in a great proportion of cases, be calamitous.

That a degree of force totally inconsistent with sound practical knowledge, must be used, (after the very hazardous operation of turning is effected,) to get the child through a deformed pelvis, where in very many instances, even after the head is lessened, great difficulty is experienced, is obvious; and where such disproportion between the child and the pelvis exists, it is equally obvious the child cannot pass alive. Need I state to any physician of practical experience, the awful mortality which must inevitably occur to the mothers, when delivery is effected by such measures, compared with what I have so fully recorded of the practice you propose to alter.

Of 16,654 births in the hospital, delivery was effected in seventy-nine by lessening the head, on account of *extreme* difficulty in the labour; or where the child was *dead*, and interference desirable, owing to the state of the mother; in six of the seventy-nine, delivery with the forceps was attempted, but no force consistent with safety could accomplish it. *Fifteen* only of the seventy-nine women died, and in *none* of the fifteen was death caused by any injury sustained in the actual delivery. The proportion of such deliveries, as I have fully stated, is greatly increased in hospital, by the same patient returning *two*, *three*, or even *more* times, in whom, from deformity or other circumstances, such mode of delivery is unavoidable. Another cause which *greatly* increases the proportion, is the *frequent* admission of patients after having been *two*, *three*, or *four* days in labour, and as the record of the cases shews, most of whom had been grossly mismanaged. Of 106 cases where the children were *still-born*, and the labour severe, nearly *one-half* were of this description.

It it a remarkable fact, that of the examples given by me, at page 487 of my "Practical Treatise," of *repeated* delivery of the same patient by the crotchet, but *one* woman died, thus satisfactorily proving, that where *death* succeeds this operation, the fatal result is not dependant on the mode of delivery, but upon the circumstances demanding such interference.

No theoretical reasoning, nor any other argument, without the *test* of *practical experience*, could for one instant cause me to listen to a statement to the effect, that if the children *had been turned* in the seventy-nine most trying and critical cases I met with, the results would have been more favourable; nay, I shudder at the thought.

What *test* could we have to place in opposition to what I call the *astounding practical fact*, that out of ALL the PROTRACTED, LABORIOUS, and TRULY DIFFICULT labours, where *delivery* was *effected* by the crotchet, in the unprecedented number reported, of sixteen thousand six hundred and fifty-four births, only *fifteen* proved fatal? Why is this simple and *overwhelming truth* not stated by you, simultaneously with the theoretical data you have given to support the statement you have made, that where the labour exceeded forty-eight hours, one patient in *three* died? Why did you not likewise state that only *eleven* patients died who were above forty-eight hours in labour out of the 16,414? Was it not imperative upon you to do so, as from your PROPORTIONAL extracts you have left your readers in total *ignorance*; for instead of the deaths being the *marvellously* small number of fifteen out of 16,654 births, your observations are of so truly dismal and feeling a character, that those who had not the clear statement I had given on the subject, which you had before you in my work, must unquestionably conclude the mortality from PROTRACTED labours, in which the crotchet was used, *frightful* indeed. I have little doubt, however, most practical physicians will agree with me, that the simple truths here stated remove the visionary gloom cast over your words.

I have still further given accurately the CAUSE of death in each of the fifteen women who died, from which it appears that out of the fifteen, *five* died from the effects of labour *previous to admission*, and are therefore not justly to be reckoned in the hospital practice; *five* from causes not the result of *protracted* labour, and two from the effects of *hemorrhage*, where *the hand had been passed into the uterus*; so that it is *thereby demonstrated*, that in the *total* number of the most trying and hazardously-protracted labours met with in the *vast* number of 16,654 births, we have, I fearlessly designate it, the INCREDIBLE MORTALITY OF THREE patients, and this under the treatment which you fancy you could improve, but in support of which improvement you have so little practical experience of your own to submit to the profession.

I have stated in my introductory observations on tedious and difficult labours, that there is no subject connected with the practice of midwifery so difficult to acquire a sound knowledge of, as the treatment of tedious and difficult labours; it is one of the most vital importance, and, in the most marked manner, distinguishes

the experienced, from the inexperienced, practitioner. This information can only be obtained by diligent and persevering attendance at the patient's bedside; all other sources are comparatively worthless, and when not conjoined with practical experience, dangerous. I think it necessary to repeat the above declaration, as from the opinions you express, your readers might hastily conclude that I had no knowledge whatever of the danger of protracted labour, whereas there is no subject has caused me greater anxiety, or occupied my thoughts more.

My statements have invariably been made strictly in condemnation of *rash* and *hasty* measures, in order to prove, that where the patient is properly treated during the progress of labour, the *mortality* from the effects of *protracted labour* is strikingly small; and I do not think it possible to submit facts more unquestionable for the satisfaction of my professional brethren than I have done. Even supposing the entire fifteen women who died after delivery with the crotchet, to have died from the effects of protracted labour, this would only amount to the *one-eleventh* part of the mortality from *other* causes; but as I have shown that only *three* of the number can fairly be so attributed, the proportional mortality is reduced to one in fifty-four.

The strong observations I had before made upon this deeply interesting subject, and published in the *Dublin Journal of Medical Science* for March, 1837, and some of the succeeding numbers, to which I would specially refer, were made, as you are well aware, to counteract the *hasty*, and if generally acted upon, *mischievous measures*, urged at that time by the late Professor Hamilton, for the *artificial dilatation* of the mouth of the womb within twelve or fourteen hours, and the *actual delivery* of the patient within twenty-four hours from the commencement of labour.

I now apprehend, if possible, greater danger, should your theoretical proposal be acted upon, and as it holds out the very strong inducement, of at once relieving the practitioner from the fatigue of a protracted and anxious attendance, the thoughtless or careless might possibly be unable to resist this great temptation, if not *forewarned* of the fatal consequences to both mother and child.

Of the fifteen cases of protracted labour we have recorded, which proved fatal, *fourteen* were delivered of *first* children, all *males*, which clearly points out the greater size of the *male*, and greater ossification of its head, as one of the chief difficulties to be encountered. How can any practitioner pretend to know, in the *early* stage of a *first* labour, (except where the diminution is extreme, which is rarely to be met with,) whether the pelvis be of such a size as to permit the head to pass, or whether the ossification of the head be such as to yield to the force of uterine action?

We totally disbelieve in the *accuracy* of the minute measurements given by some writers of the brim and outlet of the pelvis in the living subject; and even were we certain of its capacity, a child of 7lbs. or 8lbs. weight would pass with *facility*, where one of 10lbs., 12lbs. or 13lbs. could, by no *possibility*, be delivered without diminution.

To turn a child in the *early* stage of a *first* labour, where we can have no knowledge as to the practibility or impracticability of the natural effort to accomplish the delivery, is in my opinion wholly unjustifiable. Our registry *proves* that the mortality is merely confined to *first* pregnancies, where there has been no previous knowledge of the capabilities of the pelvis, and where, under ordinary circumstances, the rigidity of the soft parts renders turning hazardous to both mother and child; but where deformity of the pelvis exists, or where the child is extremely large, as is invariably the case in very protracted labours, the results must be disastrous. I venture to prognosticate, that out of 79 such *trying* cases as we have reported, the mortality instead of 15, would be much nearer to one-half of the total number of mothers; and a living child would be a rare event. Over and above the sad evils resulting from its adoption in *really laborious labours*, we shall have innumerable bad consequences from the turning of the child, in order to *expedite* the labour, *where no deformity or disproportion whatever exists*. In truth I see no limit to such mischievous proceedings, where chloroform is used, and the attendant is not conscious of the real dangers of turning the child.

Perhaps you are not aware of the *fact*, that in hospital, when puerperal fever prevails, the introduction of the hand into the uterus for *any* purpose, is usually followed by the most fatal results, —so much so that few escape. This should be carefully recollected, and when a tendency to puerperal peritonitis exists out of hospital, the risk is very great.

I shall now notice your statement that "the infantile mortality attendant upon parturition increases in a ratio progressive with the increased duration of the labour."

In reply to this theory, I shall only state the simple truth which you have *omitted*, that of 1945 cases of still-born children accurately noted; *eight hundred* and *forty-four* were delivered within *twelve hours*, and *nine hundred* and *thirty-two* within *twenty-four* hours; and I have added, that the death of the child *subsequent* to birth, except in *very few* instances comparatively speaking, was not a consequence of injury arising from *protracted* labour; for of the 284, which was the *total* number of deaths previous to the mother leaving the hospital, the labour in 246 did not exceed *twelve hours*. These unquestionable facts extinguish all speculative theories. I have also stated, when we consider the class of patients admitted into the Institution, where *extreme* poverty is the only passport demanded,—and the *very great number* admitted after having been *one, two, three, or more* days in labour, most of whom are grossly mismanaged,—besides the numerous cases sent in actually *almost dead*, as the reported cases witness, the success of the treatment pursued will be still *more* apparent.

That your opinions should totally disagree with mine, on the advantages to be derived from the use of the stethoscope as a means of ascertaining the life or death of the child, *in trying cases of protracted labour*, is what I had no doubt of; and when you state the

mighty boon which auscultation offers us in such cases to be, the delivery of the infant with the *long forceps* so as to *preserve* its life, few will wonder at our disagreement! Had I not made a better use of this invaluable assistant in the 79 cases we met with, the mortality would not have stopped at fifteen nor twice that number.

I could not picture to my mind a greater outrage in practice, than the attempt to drag a child through a deformed pelvis, or an extraordinary large child through an ordinary pelvis, with the long forceps, *more* especially as I have proved that the most trying cases are met with in *first* labours, where no relaxation of the soft parts can take place so long as the head remains at the brim of the pelvis; also, that in most laborious labours the pelvis measures little more than *three* inches from the pubes to sacrum; in others less than this; and that when we consider the blades of the smallest sized long forceps used in Britain, even when *completely closed*, measure from $3\frac{1}{8}$ inches to $3\frac{1}{2}$, it is clear that were the bones of the pelvis denuded of their *soft parts*, there would not be space to admit of their application. Your observations upon my recommendation of the use of the forceps in prolapsus of the umbilical cord, when *the child is so situated as the head can be reached with safety*, are strongly misapplied, as in the one case there is ample space to use the instrument without injury to either mother or child, whereas in the other I have already shown this to be impracticable, without exposing the patient to unjustifiable danger. It is to be supposed, if you had not some experience of the mischievous effects of the long forceps under such circumstances, you would not now be so anxious to abolish the use of them; but as we say in Ireland, you have leaped "out of the frying pan into the fire."

As you so fairly state that I am the only writer who furnished the profession with data showing the duration of labour, either in natural or operative cases, and that my "Practical Treatise on Midwifery" is a work, the great value and candour of the facts contained in which it would be difficult to overpraise, I would solicit from you, in return for the information which cost me so much labour to supply to my professional brethren, that henceforth, and upon all occasions, either in your lectures as a University Professor, or in your writings, you would plainly state the *total* number of cases under each head you refer to, and at the same time give the *No. of the case* which is *affixed* to each, in order to enable the profession to judge for themselves of the correctness of reference.

I would also *claim* from you, as a reward for my industry, that when you refer to the mortality of the patients under my care, and recommend a *different* mode of treatment, you would honourably state, that Dr. Collins' practice, which you propose to improve, is much the most successful on record, as you know of no report of 10,785 cases, with a mortality so small as *one* in *one hundred and eighty-six*. This is only an act of *simple justice*, and I should not object to your *then* adding, "if Dr. Collins had adopted *my* treatment, *none* of the patients would have died."

Provincial Medical and Surgical Journal, Oct. 10, 1848, *p.* 572.

[In another number of the Provincial Medical Journal, Dr. Simpson answers Dr. Collins, showing, and we think very satisfactorily, that Dr. Collins is wrong in his statistical calculations on this subject. Dr. Simpson says,]—

One fundamental mistake in your statistics and calculations has led you into all your numerous errors and inaccuracies relative to the effects arising from the morbid protraction of labour. This error has made you repeatedly express and maintain, as the supposed result of your own facts and experience, opinions which your own facts and experience, when properly interpreted, totally, and altogether contradict.

The error which I allude to is this: in calculating from your experience of 16,414 deliveries, the effects upon the maternal mortality of morbid prolongation of the labour, as a special or individual complication, you calculate the resulting number of deaths in relation to the total sum of all the cases delivered, (16,414,) instead of calculating them in relation to the total sum of all the cases merely that were protracted. You calculate the effects of the complications relatively to the whole number of cases of delivery, instead of relatively to the whole number of cases of this special complication, (protraction.) An example may illustrate my meaning. I shall take it from the subject of rupture of the uterus and vagina.

During your seven years' Mastership of the Dublin Hospital, thirty-four cases of rupture of the uterus and vagina occurred, and thirty-two of the mothers died; two only of the thirty-four survived. If asked whether rupture of the uterus were a dangerous complication or not,—whether the mortality attendant upon it was "strikingly small or strikingly great," what answer would you return? If you argued and answered upon this special complication as you do with regard to the special complication of protraction, you would maintain that the mortality from rupture was strikingly small; for only thirty-two mothers out of 16,414, or about one in every 513, died of it. This would shew, certainly, the proportion of deaths from rupture in relation to the total sum of all the cases delivered; but it would not shew what was wanted, viz., the proportion of deaths from rupture in relation to the total sum of all the cases in which rupture happened. If you wished, in short, to state the real risk and danger attendant upon this special complication, (rupture,) you would state that thirty-two mothers died of it out of thirty-four cases in which it occurred, instead of stating that only one in 513 died of it. And, exactly in the same way, if asked what was the degree of maternal risk and danger attendant upon another special complication, viz., protraction of labour beyond twenty-hours, your answer on the same principle should not be as you have it,—forty-two deaths in 16,414 labours, or in the proportion of one in 391; but forty-two deaths in 452 labours, (the *whole* number protracted beyond twenty hours,) or one death in every eleven cases of labour prolonged to this amount of protraction

Ask any intelligent actuary, or any medical friend acquainted with the principles of statistics, and they will perhaps convince you more than any more lengthened remarks of mine would, respecting the errors you have committed on this, and on various other analogous statistical questions.

[If the reader has not read Dr. Simpson's interesting paper on this subject, he will do well to refer to it in our last Retrospect.]

Provincial Medical and Surgical Journal, Nov. 1, 1848, *p.* 601.

152.—ON THE APPLICATION OF THE LONG FORCEPS.

By Dr. J. Y. Simpson, Professor, &c.

[Dr. Simpson decidedly prefers the use of the long forceps to the employment of craniotomy, in the majority of cases where these modes of delivery come into competition. He gives the following directions for their application:]

In their modes of application, the long forceps differ from the short. The short forceps are applied always to the lateral surfaces of the child's head, in whatever position the head may be. Generally, the long diameter of the head lies in the right diagonal diameter of the pelvis; and, consequently, the short forceps are placed in the opposite or left diagonal diameter; or, in other words, at right angles to the long diameter of the head. The mode in which the long forceps ought to be applied, and are really applied in practice, has given rise to considerable difference of opinion.

If the long forceps are ever, for inertia, hemorrhage, or other such complications, in any case applied while the head is passing through the brim, and the brim and head are natural in size, the instrument may be perhaps applied, like the short forceps, directly to the lateral surfaces of the child's head. But the common reason for the employment of the long forceps, is morbid contraction of the brim of the pelvis in its most general form, and from its most general cause, viz., in the conjugate or antero-posterior diameter, from projection forward of the promontory of the sacrum. How are the long forceps applied when used in this, the case in which they are most generally had recourse to in practice? It is first requisite to state, that under this complication the child's head is found situated in the brim, with its long or fronto-occipital diameter lying in the transverse diameter of the brim, or with the forehead looking to one ilium, and the occiput looking to the other. In other words, the long diameter of the head is not placed, as usual, in the right diagonal diameter of the brim, but more in its transverse; for where the promontory of the sacrum forms a morbid projection, the transverse forms the longest diameter of the brim, and, consequently, the one in which the child's head comes to be placed by the uterine efforts. The face or forehead looking to the ilium, and the occiput to the other ilium, the lateral surfaces of the child's head come to

be compressed between the protruding sacral promontory and the interior of the symphysis pubis. Now, in seizing the head in this case, some authors aver, that,

1*st. The blades of the long forceps are placed, as in applying the short forceps, on the lateral or aural surfaces of the child's head,* and consequently with one blade in front of the sacral promontory, and the other behind the symphysis pubis. Burns, Dewees, &c., speak thus of applying the long forceps in the conjugate diameter of the brim; and Dr. Churchill has published a woodcut representing this as the actual method of their application in practice. But its application in this position is impossible in the very cases in which the long forceps are generally required, viz., where the conjugate diameter is contracted, for there is not room for the additional thickness of the blades of the instrument; if applied, they add to the thickness of the head in that one diameter and place in which it is already too thick and large; their pressure would greatly endanger the urethra and bladder in front, and the soft structures placed over the promontory of the sacrum behind; and they could not thus be placed in the axis of the brim, in consequence of the pressure of the perineum upon the instrument below. Other authors aver, that,

2. *The blades of the long forceps should be placed over the occiput and forehead or face of the child, and consequently in the transverse diameter of the brim.* This is the view of their mode of application taken by Deleurye, Davis, &c., &c., and approaches much nearer the reality than the former opinion; but that it is not strictly true, is shown by the marking of the place of application of the blades of the instrument after the child is born, and by a more attentive consideration of the mechanism of such labours. One blade is found to have been placed behind one ear, and the point of the other to have pressed upon the side of the forehead, temple, or region of the eye; but these would not be the places of the markings of the blades, if they were applied in the transverse diameter, upon a head placed directly transverse. Dr. Ramsbotham has published a beautiful plate of the mode of application of the long forceps, and has given an excellent chapter on the subject in his work on midwifery. He correctly represents in the plate the anterior blade as placed upon the side of the forehead and eye-brow; but in order to give this view with the forceps placed in the transverse diameter of the brim, he has been obliged to represent the face as turned backwards, whilst in reality, in morbid contractions of the conjugate diameter of the brim, it is actually turned laterally; and he places the long diameter of the blades of the forceps so as to traverse the right oblique instead of the left oblique pelvic diameter.

3. *The blades of the long forceps should, I believe, be placed obliquely upon the child's head,—one, the posterior, over the side of the occiput; and the other, or anterior, over the side of the brow or temple, and consequently should be situated in the oblique diameter of the brim.* The markings on the child's head after birth always show this mode of application of the instrument: when properly applied upon the mother, and when their situation relative to the pelvis is examined,

they are found to have assumed this position; and in experiments with the instrument (when the head of a dead child is fixed in a pelvis with a contracted brim), this is the position and relation which the instrument will be seen to assume with relation to the infantile head and maternal pelvis. Besides, in thus placing the instrument, while we incur less danger of injuring the urethra and other important parts, we place the blades of the instrument in exactly those parts of the pelvic circle where there is least pressure, and consequently most room for them. It is apparently in consequence of misconception on this point, that some authors have come to prefer the use of the perforator to that of the long forceps. Dr. Collins, for example, argues that when the head is detained in the pelvic brim, the brim "measuring little more than three inches from pubis to sacrum," there cannot possibly be space for the long forceps even were the bones denuded, seeing that the blades of the smallest sized forceps used in Britain, even when completely closed, measure from $3\frac{1}{8}$ inches to $3\frac{1}{4}$. "How (he adds) is it possible with the forceps to drag a child through a pelvis where there is not space, except by force, to introduce, as is commonly said, a straw, or where the smallest flexible catheter cannot be passed in some instances into the bladder?" These and such opinions proceed on the erroneous idea, that the long forceps are to be applied, within the pelvis, at the parts or in the diameter in which the pelvis is *most* contracted, and they suppose that the head when fixed in the pelvic brim fills completely the *whole* circle of the brim. The usual shape of the morbidly contracted pelvic brim is cordate, or rather elliptico-cordate, but the child's head is not of this shape; it is ovoid, and consequently when applied to the cordate brim leaves unoccupied spaces. The most unoccupied spaces before and behind are at the extremities of the oblique diameters of the brim, where sufficient room is left for the passage of the blades of the forceps, and in these points they are passed when properly applied.

Monthly Journal, Sept., 1848, *p.* 193.

153.—ON TURNING AS AN ALTERNATIVE FOR CRANIOTOMY.

By Dr. J. Y. Simpson, Professor of Midwifery in the University of Edinburgh.

[Is the practice of turning as an alternative for craniotomy and the long forceps in deformity of the brim of the pelvis, &c., incompatible or not with the safety and life of the child in consequence of the compression of the cord? This important question is answered by Dr. Simpson in the Provincial Journal for July. In our long abstract of Dr. Simpson's papers in Retrospect, Vol. xvii., p. 308, the present paper came out too late to be introduced into that volume,—we therefore give it here. Dr. Simpson says:]

In speaking of the propriety of delivery by turning in the class of cases for which I have proposed it, Dr. Radford states as an

objection to it, the danger and death to the infant from pressure upon the funis, and consequent obstruction of the umbilical circulation. In footling presentations, "the funis, (he observes,) is subject to fatal compression;" and he imagines this danger must be greatly increased in cases in which the child has been turned, on account of distortion of the maternal pelvis.

Perhaps the proper and the most direct answer to this, as to the other objections to turning, drawn from supposed dangers to the child, is simply a reference to the actual results of the cases which I have already quoted, and may yet have occasion to quote in the sequel. In many of these the child will be found to have passed or been drawn footling through a contracted pelvis, and yet, in despite of the alleged fatal danger of compression of the funis between the body or head of the child, and the interior of the maternal passages, the infant *has* been born alive. The infant has been subjected to the alleged cause of danger and death without the alleged effects following; and hence we are surely entitled to conclude that the influence of the cause is not so likely to interfere with the operation of delivery, as has been theoretically pre-supposed.

Let me not be misunderstood. I by no means wish to argue that in turning in distorted pelvis there is no danger to the child from umbilical compression, for I believe quite the reverse; but I imagine, at the same time, that on first thinking over this undoubted source of danger, we are apt in our own minds to magnify its effects. Experience, as I have just now stated, teaches us that they are not so great as theory might lead us *a priori* to believe; and when we consider the subject for a moment, we shall find, I think, sufficient reason for seeing,—1st, that the risk and occurrence of umbilical compression in footling presentations and turning is not so very great as to invalidate the practice, and it is in part averted by the very form of distortion to which the pelvic brim is most usually subject; besides, supposing, 2nd, the compression to take place, there may still, I believe, be measures in the resources of science, by which, if we cannnot now avert the occurrence of compression of the cord, we may prevent at least the more dangerous consequences of the complication for the child. I shall speak briefly of each of these points.

[Dr. Simpson goes on to show that the danger and mortality from compression of the cord is not so great as to invalidate the practice of turning, and next proceeds to speak of the]

Arrangements and Means by which Compression of the Cord, in its effects, may be averted.—Dr. Radford believes that when the child is extracted by turning on account of distortion of the maternal pelvis, the danger of fatal compression of the umbilical cord is then greatly increased by the fact of the distortion. But the common variety of contracted pelvis requiring turning is, (as I have already stated, and will insist upon more afterwards,) the peculiar and common kidney-shaped distortion of the pelvic brim, which is produced by the anterior prominence and projection of the sacral pro-

montory. When the fœtal head enters it, as it does under extraction by turning, with its long or occipito-frontal diameter lying in the transverse diameter of the brim, then we have a free space left of greater or less size between the face or forehead of the child, and the ilium to which it looks. In this space, sufficient room may certainly, in general, be found for the free lodgment of the cord without injurious compression The very narrowness of the conjugate diameter of the brim prevents this space being entirely filled up and encroached upon, by preventing the great mass and breadth of the head (from the coronal suture backwards,) from further passing over to this partially-occupied side of the pelvis. Besides, this uncompressed lateral space is the very site along, or near which the cord necessarily passes in descending from the uterus, and stretching between the placenta and umbilicus. For the anterior surface of the abdomen of the child to which the lower end of the cord is attached, always, of course, looks to that side of the pelvis to which the face is directed, and it is on that side that we have the free and uncompressed space I speak of, as fitted for the safe transit and lodgment of the cord. In thus stating the space as free and uncompressed, I mean in so far as the adjoining opposite surfaces of the child's head and interior of the pelvis are concerned. The space itself may be filled up, or the cord in it pressed upon by the circle of the cervix uteri or other soft parts; but certainly a little adjustment and management may often prevent any fatal compression from these sources. For the cord may be carried round by the accoucheur to that point in which there appears the greatest space, and consequently, the greatest freedom from compression, and he may sometimes defend it from the pressure of the cervix by allowing it to pass between two fingers, introduced either for the sole purpose of protecting it, or with the view of simultaneously assisting the extraction of the head by applying some force to the cheeks or lower jaw. In both natural and artificial footling presentations it has even been proposed to defend the cord more methodically by shielding and enveloping it at the part liable to compression in a kind of special protecting instrument. Dr. Joos, of Schaffhausen, has ingeniously proposed an instrument for this purpose. It consists of a tube from four to eight inches in length, and of calibre sufficient to contain the umbilical cord, leaving a longitudinal slit or fissure equal to 1-12th of its circumference. It is composed of caoutchouc or leather, in which are embedded a series of steel rings three lines broad, and at the distance of one line from each other. The slit is opened up at one end by the finger, so as to admit the umbilical cord, and in the same manner it is made to receive it along its whole length, the fissure closing up as the finger is removed. A handle may be required subsequently to keep the instrument in its proper place. "The application of the instrument" (says Dr. Joos,) "takes place during the act of birth, by presentation of the breech or feet, in cases where delivery is effected by version and bringing down the feet, and in cases where the cord is prolapsed and cannot be returned." But I greatly doubt whether,

even if we were provided with such an instrument, as Dr. Joos describes, we should not find the difficulties of applying it, and the time required for that purpose, more dangerous to the infant, than the extraction of the child's head by more simple and direct means. It is always well to avoid instruments when we can avoid them, and such an one as the present might not be used without some danger to the structures at the os uteri.

Suppose, however, that the means we used to avoid compression of the cord, by placing it in the least occupied point at the brim, or by preventing the soft parts pressing upon it by the fingers, or otherwise, were in vain, and that at last it really became irretrievably compressed, and its pulsations arrested before the head could possibly be extracted, is the safety of the child utterly hopeless? I believe not. Long ago, Pugh and Morlanne recommended a practice that has been latterly followed by Bigelow and others, and which I believe, is calculated in some instances to enable us to continue the life of the child, by continuing its respiratory function, whilst we go on exerting, from time to time, those cautious yet decided means, which we have seen Dr. Denman recommending, for effecting the complete extraction of the obstructed head. The means to which I allude consist in exciting pulmonary respiration in the half-born child, now that its placental respiration is stopped, and in making it continue that vital process by the action of the lungs, now that it is prevented from being exercised, by the medium of the placenta and umbilical cord. "When the parts are well made," says Pugh, "and the child in proportion, happy the case! It will come then any way; the arms being brought down, the head only remains to be extracted, which must be done with as much expedition as possible, as indeed the arms ought to be; for, consider, when the child has passed the navel, the circulation between it and the mother is stopped from the pressure of the umbilical rope; you must then introduce the fingers of your left hand into the vagina, under the child's breast, and put the first and second fingers into the child's mouth pretty far; so far, however, that you are able to press down the child's tongue in such a manner, that by keeping your hand hollow, and pressing it upon the mother's rectum, the air may have access to the larynx; you will soon perceive the thorax expand, as the air gets into the lungs. *By this method* (he adds,) *of giving the child air, I have saved great numbers of children's lives, which otherwise must have died.*"

Acting on the plan thus suggested by Pugh, we may in some cases, be able, with a little management, to change thus the respiration of the infant from its intra-uterine to its extra-uterine type, though the head were still held and arrested at the brim; for the mouth of the infant is always then within reach, and could, I believe be used for the purpose of admitting a proper quantity of air into the pulmonary passages, even when the great bulk of the head is still held above the brim. It is a practice, at all events, which sometimes succeeds sufficiently well when the head is down in the pelvis, and we have all the difficulties of a rigid outlet and perineum

to contend against, in our attempts either to extract the head, or to admit a sufficiently free access of air to the mouth of the fœtus.

[He advances the two following cases from Dr. Lee's Clinical Midwifery, as illustrative of his views:]

Case 32.—The nates presented, the trunk and extremities were extracted, "but the head could not be drawn through the external parts, from the rigid state of the perinæum; and the pulsations of the cord were becoming more and more feeble. So great was the resistance of the perinæum, that it was impossible to overcome it without destroying the child. I pressed back its edge, however, so far, that the external air could enter the mouth of the child, and it respired in this way fully twenty minutes after the pulsations of the cord had ceased. In spite of all our care, the edge of the perinæum gave way as the bulky part of the head passed through the external parts, but the child sustained no injury, and continued to live."

Case 33. - I attended a lady in her first labour, on the 22nd October, 1837. The nates presented, and the cord ceased to pulsate after the trunk and extremities of the child had been extracted. The perinæum was so rigid, that the head could not have been delivered without using so much force, that the parts must have been torn, and the neck of the child injured. I held the body of the child as far forwards as possible, while Dr. H. Davies assisted me in holding back the perinæum, that the air might enter the mouth of the child. The respiration went on for nearly half an hour before the head could be safely drawn into the world, and during the whole of the time there was no pulsation in the cord. The child is alive, and the perinæum was not injured.

The child may not only be able to breathe, but even heard to cry, with the head still unborn, when this form of treatment is adopted. In his paper on the subject, published in the *American Journal of Medical Sciences*, for 1829, Professor Bigelow states, among others, the following case:—

Case 34.—In a case of arm-presentation, in which the feet were brought down, and the body delivered, "the face turned towards the perinæum, the mouth was easily reached, and the fingers were opened to give passage to the air as before described. No struggle nor attempt at respiration however occurred. A handful of cold water was then dashed upon the body, upon which the child immediately gave a spring, and began to cry. The head was not delivered till some minutes afterwards."

In his observations and directions upon this modification of practice, Dr. Bigelow observes:—"After the body is expelled, if the head can be seasonably delivered, either by the recurrence of pains, or by the successful efforts of the practitioner, no difficulty ordinarily occurs. But this desirable state of things cannot always be realized; too frequently the size of the head, and the resistance of the pelvis or soft parts, renders the delivery difficult or hazardous, and the practitioner, in the midst of his efforts, is apprised by a convulsive jerk, or spring of the body, that a state of extreme

danger exists, and that the time has come at which the child must breathe, or will speedily die. If at this period the fingers be introduced, so as to reach the mouth of the child, it will be perceived that each jerk of the body is attended with a gasp, and convulsive effort at inspiration, performed by the mouth and chest of the child. In this state of things, if air be conveyed to the mouth of the child, it will immediately breathe, and the efforts of nature, as will hereafter be shown, may, in most cases, be safely waited for to assist in expelling the head."

"The method to be pursued," he continues, "in conveying air to the mouth, depends upon the situation of the head. If the chin has descended low in the pelvis, so that the mouth rests upon the perinæum, or lower part of the sacrum, and can be readily reached by the fingers, the hand of the operator alone is sufficient to give the assistance required. But if the mouth is situated so high in the pelvis as to be reached with difficulty, or if, from the large relative size of the head, there is much compression, the assistance of a tube may be of use. The mode of proceeding which I have found successful in various instances, is as follows:— As soon as the body and arms are extracted, supposing the face be towards the sacrum, an assistant supports the body, carrying it towards the pubis; or the reverse, should the position of the face be to the pubis. The accoucheur should then introduce the hand to which the face looks, till the middle fingers rest upon the mouth of the child; the hand is then to be raised from the throat of the child, making the ends of the fingers a fulcrum, and pushing the perinæum backwards; the air will thus pass upwards as far as the chin of the child; the middle fingers are now to be separated about half an inch from each other, and thus a complete passage will be formed between them, by which the air will reach the mouth of the child. If the child be in a healthy state up to this period, it will immediately breathe and cry, and the delivery of the head may be safely postponed till the natural pains recur. If, from any degree of asphyxia, the child does not immediately breathe, it may often be made to do so by dashing cold water upon the body, or by other stimulating processes. It has even appeared to me practicable to inflate the lungs in some cases, through an elastic catheter. When the mouth is so high in the pelvis as to be reached with difficulty, or when the compression is so great as to obliterate the cavity between the fingers, a flat tube will be found useful, made of metal of spiral wire covered with leather, or of elastic gum, and having its largest diameter about half an inch. If the tube be of metal or any incompressible material, it should be withdrawn during a pain, to prevent contusion of the soft parts, and immediately replaced, if the pain subsides without expelling the head. Such a tube may be considered as a prolongation of the trachea, and is fully sufficient to sustain life by respiration for a considerable time. The tube must be guarded and directed by keeping it between the fingers of the inserted hand.

If all the preceding measures fail to avert compression, there is

always still one strong hope left, namely, that if after complete compression of the umbilical vessels has occurred, no very great length of time is lost in the extraction of the head, the child may yet be born alive. For the type of vitality in the unborn infant is such that it will often survive, and be capable of being resuscitated, although the placental respiration be arrested for several minutes before its actual birth. And with others, I have been repeatedly surprised, in such cases as we are considering, both at the great amount of extractive force which the structures of the infant will sometimes undergo without life being destroyed, and at the apparent great length of time, during which, in making these extractive exertions, the infant will still survive, and that too although the cord was compressed during their continuance. If the infant be perfectly viable, and its heart sounding normally at the time that turning is adopted, there are perhaps comparatively few cases in which it will be requisite to expend so much time upon the forcible compression and extraction of the head as to destroy during that time the child's life by simple compression of the cord alone.

Provincial Medical and Surgical Journal, July 26, 1848, p. 393.

154.—*Cases of Torsion, Doubling, and Expulsion of the Fœtus, in Shoulder Presentations.*—By Dr. T. Radford, Manchester.—[Dr. Radford was sent for to a woman in labour of her fifth child, under the care of a midwife; she had been in labour for twenty-four hours, and had frequent and powerful pains. Dr. R. says:]

On a vaginal examination, I found the right hand down, and the entire arm protruding out. I felt the scapula placed forwards, and the clavicle resting firmly against the upper portion of the left descending ramus of the pubis. I could readily trace the ribs bulging downwards; the child lay obliquely, with the breech towards the right sacro-iliac junction. Having determined to turn the child, I first gave a drachm of laudanum, and quickly abstracted about eighteen ounces of blood. The pains were still very powerful. I now passed the right hand into the vagina, and onwards as far as possible, but I found the child so forcibly wedged in the pelvis, and the uterus so strongly contracted on it, as to completely oppose my efforts. I however tried again, and used as much force as I thought justifiable. I now perceived that the ribs further descended, and came to press on the perinæum. The arm still remained fully protruded, and, if anything, the clavicle was pressed more firmly against the pubis. A very strong pain now occurred, during which I felt another part of the child coming along upon the perinæum, and which I took for the breech. The uterine contraction continued very strong, and being assisted by the voluntary efforts of the woman, soon completed the expulsion of first the breech, and successively the thighs, abdomen, chest, and lastly, of the head with the left arm. The right arm, during the whole of the process, remained *fixedly stationary*. The perinæum was enormously distended (as may be readily supposed) during the progress of the breech between it and the chest of the child, but fortunately, it safely yielded

to the pressure. The child, full sized, appeared to have recently died, and, from the mother's account, this event must have happened during the labour. The placenta was soon expelled, and nothing unfavourable happened. The pelvis was examined and found full sized. The patient recovered as well as after ordinary labour.

Case 2nd.—I was desired by Mrs. Buckley, midwife, to come to her assistance in a case of arm presentation. The patient resided in Blakely Street. This was her sixth pregnancy. She had been in labour about eighteen hours, and the membranes had ruptured about eight hours before, but the presentation was not then ascertained. The pains continued strong, and after some time the hand was found down first. When I came I discovered the left arm completely beyond the external parts, the shoulder stern wedged in the pelvis, and the left clavicle pressed on against the right ramus of the pubis. The uterus felt very hard, and firmly embraced the child; its transverse diameter was longer than when the head presents. Having determined, if possible, to turn the child, I first gave the woman a drachm of laudanum, and abstracted from the arm, by a large orifice, from sixteen to twenty ounces of blood. I now attempted to pass the hand to turn, but was foiled. I waited a short time in hopes that the pains would diminish in force, but again did not succeed. I abstracted more blood, but notwithstanding she felt faintish, the uterus continued to act strongly. Hoping that this organ would be tired by its exertion, I thought it better to trust awhile to this chance than to embryotomize, but in this expectation I was disappointed. After a time I found that the ribs of the child were pressing more on the perinæum, and so continued, until from the influence of a very strong pain, the breech was pushed along it, and was soon first expelled, succeeded by the rest of the child, its head and right arm coming the last. During the entire change the left arm remained entirely external, and the clavicle *firmly fixed* against the pubis. It was of average size, and recently dead. The placenta was soon expelled. There was no reason to elieve that the maternal pelvis was above standard measurement. There was no hemorrhage or structural laceration. She recovered well.

British Record, July 1, 1848, *p.* 246.

155.—*Case Illustrative of So-named "Spontaneous Evolution."*—By Henry Winterbottom, Esq., Surgeon to the Manchester and Salford Lying-in Hospital.—[Mr. Winterbottom was sent for to a woman thirty-one years of age, who had been in labour with her sixth child about two hours. He says:]

By a vaginal examination, I discovered the hand protruding externally, and on passing the finger along the vagina, I felt what I considered to be the shoulder. Having determined to turn, I immediately prepared for the operation, previously giving a full dose of laudanum. On passing my hand to change the position of the child, I immediately recognized that part which I had at first taken

for the shoulder, to be the breech obliquely placed, and which had partially entered the pelvis. I now desisted from any further attempts to turn, and no sooner had I come to this determination than a strong pain occurred, which forced down the breech, during which event, the arm and hand retired. The pains continued powerful, and in the course of a few minutes, a full-sized dead child was expelled. The placenta soon followed. There was nothing further unfavourable happened, and she is at present doing well.

Remarks.—The rapid descent of the breech in this case might have led some to consider it as the result of the process misnamed "Spontaneous Evolution;" but from what I had previously learnt from having read Douglas's description of this wonderful natural operation, and also from the remarks and demonstration of Dr. Radford, I was convinced it was not so, and that it was only a compound presentation.

It also explains to us why we read so frequently of cases of "Spontaneous Evolution," and it further affords to us an important beacon not to be rash, or have recourse to operative means, which, under the most favourable circumstances, cannot be said to be entirely free from danger.

At a future time, I shall report a case of expulsion of a child in a double position.

[Having now placed the matter *(it is hoped)* in a clear light, a few concluding observations are called for. First, we may assert without fear of contradiction by any one that reflects on the subject, that no such a circumstance as evolution ever takes place, either in the pelvis, or uterus, except where the accoucheur turns the child by his own hand; in such a case, the body of the fœtus really performs an evolution; with this exception, evolution *never occurs.* For, in the cases called by authors spontaneous evolution, the chil never revolves at all. In the one instance, the arm is so low down that it never retracts; the remaining part of the fœtus unfolding itself past the fixed presenting part. In the other cases it is a mere choice of parts, favoured by peculiar circumstances, the child still performing no *evolution.* The strict meaning of such a term being a turning round of the fœtus. Thus, then, the term evolution is incorrect, and does not in the least explain the intention of nature. Velpeau calls it unfolding of the body past the presenting part; still this is not a satisfactory term. I should be inclined to consider the first class of cases under the term of Doubling Presentations, which would, at least, express the object nature has in view. The other class of cases may be best known as *Changes of position in utero.* At all events, the first cases are always associated with the true pelvic cavity, whilst the others are strictly uterine, and not pelvic operations.—*Ed. Brit. Record.*]

British Record, July 1, 1848, *p.* 245.

156.—AN UNUSUAL CASE OF UTERO-GESTATION.

By W. Newnham, Esq., Farnham.

[On the 16th of November, 1822, a woman in the parish of Farnham, Surrey, after having had irregular uterine action for two days, was delivered by a midwife of a dead fœtus, of a little more than thirteen inches long, and having the appearance of a seven months' fœtus. The placenta was shortly afterwards expelled, and it was then found that there was a second fœtus, living and active, in utero: but as there were no pains and no hemorrhage, it was determined to wait the event. The woman recovered favourably; and on the 14th of January, 1823, or fifty-nine days from her premature accouchement, she was again taken in labour, and delivered of a fine healthy child. She had been regularly unwell on the last week of March, and expected her confinement to take place about Christmas. On this case Mr. Newnham makes the following observations:]

I. This case does not appear to have been one of *super-fœtation*, but rather one in which two ova had been impregnated at (or very nearly at) the same time; inasmuch as the appearance of the still-born fœtus, the previous history of the patient, and the subsequent fulfilment of the regular term of utero-gestation with regard to the remaining fœtus, all *concur* in fixing the period of impregnation at about a fortnight after the last appearance of the catamenia.

II. Many circumstances in the history of the uterine economy have repeatedly shewn its power of selection, of carrying on its function of gestation as long it could be done with advantage to the parent and her offspring, and of taking on its expulsive action when this compact has been destroyed, and its contents became irritants to itself, or to the general system of the mother. This law has been frequently shown in the case of blighted ova: the death of the fœtus from whatever cause, and at whatever period of its development; the existence of moles, polypi, hydatids, &c. But our views of its variety of function are enlarged, and our admiration of the wonderful resources of nature is augmented, when we perceive the uterus carrying on the process of gestation with twin fœtuses—becoming irritated by the death of one of those fœtuses—taking on its expulsive action for the purpose of ridding itself of the irritating cause—and immediately afterwards sinking again a into state of quiescence, and reassuming its gestatory function in order to carry on the remaining living fœtus to its full term, and thus securing its perfect development—exempting it from the dangers commonly attendant upon premature birth, and procuring to the mother the advantages accruing to the parental system from the *natural completion* of the parturient function.

III. The practical inference to be drawn from the preceding narrative is, that in those cases of premature labour, where one fœtus shall have been expelled, but a second or more shall be remaining in utero; where the membranes of the remaining fœtus

shall have been undisturbed, snd its vitality shall have been established; where the expulsive action of the uterus shall have subsided; and where there exists no contra-indicating symptom, producing fear for the safety of the parent; it is the duty of the practitioner not to interfere, but quietly to watch his patient, and see if nature will not herself remedy the disorder of her functions which has been apparently produced. It is infinitely better thus humbly to expound nature's intentions, than to enjoy the éclat of a mighty simple operation, viz., rupturing the membranes, turning, and delivering by the feet, and thus exposing parent and child to considerable unnecessary risk.

IV. These inferences do not happily rest on an individual case: many similar instances have been noticed, but at the same time they are not of such every-day occurrence as to supersede the propriety of recording them, and thus enlarging our acquaintance with the almost endless wonders of the uterine system.

[In the *London and Edinburgh Monthly Journal of Medical Science, Dec.*, 1842, a case is related by Dr. Jameson of a blighted twin being retained, with its placenta and membranes, for seven weeks after the birth of its fellow twin alive, and which was presumed to have arrived at the full period of utero-gestation. This is very remarkable! We can easily conceive the uterus to be endowed with the power of ridding itself of a blighted or dead fœtus before the period of utero-gestation is accomplished, even allowing the second fœtus to be retained to the full period; but to throw off the healthy, and retain the blighted one, and that beyond the usual period of pregnancy, is an anomaly proving that the laws of nature, in many cases, are extremely difficult of explanation. In the *Lancet, Jan.*, 1843, a Mr. Vale recites a case of a woman, being pregnant with twins, giving birth to the first alive, at the seventh month; and the second also alive, two months afterwards, being the completion of the proper period of utero-gestation. Drs. M' Clintock and Hardy, in their truly excellent and practical work, entitled "Practical observations on midwifery," 1848, record the case of a female at her sixth pregnancy producing twins, both children being girls, the first of which was strong and healthy, and apparently at full time—the second much smaller, dead, copper-coloured, and in a state of putrefaction. In this case there was but one placenta, and that part of it which was enclosed by the membranes of the dead child was slightly darker and more consolidated than the rest. We (the Ed.) have in our practice experienced three cases in which the births of twin children were separated by a space of time; in two cases an interval of three weeks occurred, and in the other fourteen days. In all three cases the first-born fœtus was dead. Such examples go far to prove that in cases of plural births each fœtus possesses its independant involucra. We do not detect any of the characteristics of super-fœtation in these cases; in fact, we experience considerable doubts respecting the majority of cases published under that title.—*Ed. Brit. Record.*]

Monograph in British Record, April 15, 1848, *p* 2.

157.—*On the Use of Bitartrate of Potash in Uterine Hemorrhage.*—By Dr. Silvester, Clapham.—[Dr. Silvester states that cream of tartar possesses singular power in controlling uterine hemorrhage. He finds it equal to any other remedy, in hemorrhage from separation of the ovum or placenta, polypus, malignant disease, &c.; but, says he,]

It is in menorrhagia, or excessive menstrual discharge, prolonged continuously beyond its usual duration, or appearing at irregular intervals, that it displays its unequalled efficacy. Sometimes after abortion the patient continues to suffer from an occasional discharge which gradually ceases after inflicting much injury on the general health, and is with difficulty cured by tonics and astringents; it will in such cases be found to effect an almost instantaneous beneficial change. There are also instances met with in practice of a sanious or pale secretion from the uterus, sometimes treated as leucorrhœa by local astringents; they are accompanied by venous bruit, and are examples of imperfect menstruation. These yield rapidly to the bitartrate of potash, and, singular to say, the patient often recovers perfectly, without the administration of iron or other tonics.

Provincial Medical and Surgical Journal, Sept. 6, 1848, p. 495.

158.—*Case of Puerperal Convulsions in which Galvanism was used.*—By Dr. J. R. Wardell.—[A healthy-looking woman, 24 years old, was attacked at the conclusion of the first stage of labour by a paroxysm of general muscular rigidity, accompanied by congested countenance and slow pulse, insensibility and incoherence. Delivery was accomplished as soon as possible, but the paroxysms shortly afterwards returned, and an attempt to bleed the patient was unsuccessful. The skin becoming colder, the pulse slower—44, and the countenance more congested, stimulants were given by the rectum, and rubbed on the chest, but without good effect. Dr. Wardell proceeds to say,]

Symptoms of amendment not becoming manifest, it was very properly suggested by Mr. Cole that voltaic electricity should be tried, with a view if possible to rouse the central organs of the nervous system. Mr. Cole, who has long used galvanism as a medicinal agent, and often with marked success, had by him three or four descriptions of apparatus; that of Bichoffners was selected, and readily rendered available. I carefully noticed the pulse, which was now 58, and Mr. Cole then placed one wire behind the neck, the other over the last lumbar vertebra. In ten minutes the pulse rose to 100, and remained at that degree of frequency so long as the electric fluid was employed. She soon expressed herself as being "better," and seemed more collected. In a quarter of an hour after the wires were discontinued, the pulse fell to 80, but was of improved strength and volume; the skin generally grew warmer, the looks were more natural, and she now answered questions rationally.

Eight o'clock. *(Vespere.)* No return of fits; surface warm and moist; pulse 64, of good volume and strength. Ordered a little gruel, and hot bottles to the feet.

19th, half-past one, p.m. Summoned in great haste, it being reported she had had in quick succession three fits, which were pretty similar to those yesterday. No foaming at the mouth. On my arrival was sensible; countenance red and flushed; skin hot; pulse of better volume and strength; tongue rather dry; eyes a good deal injected; head hot; some lachrymation; pupils normal.

Venesectio ad oz. xi., (which was carried so far as to produce a slight impression upon the pulse.)

℞. Calomelanos, gr. iv.; pulv. opii, gr. iss.; extr. hyosciami, gr. iv. Misce. fiat pil. ij. statim sumendæ. Empl. lyttæ, nuchæ. A bladder of ice to be applied to the head.

Eight o'clock, *(vespere.)* No return of fits. Since she took the pills she has had a tranquil and continuous sleep; says her head feels "comfortable" since the application of the ice; pulse 76, full and soft; skin moist; tongue not at all dry, and tolerably clean. Countenance natural, and expresses herself as much better.

[She was convalescent in a few days.]

Provincial Medical and Surgical Journal, May 17, 1848. *p* 262.

159.—*New Instrument for applying Galvanism to the Uterus*—Dr. Tracy E. Waller recommends the following instrument in applying the galvanic current:—It is made of seasoned wood, of proper size and length, and bent to suit the vaginal curve in the direction of the womb; through this a copper wire passes, with a metallic ball one inch in its longest and three-fourths of an inch in its shortest diameter, fastened by a screw to the end, and coated with silver. The wire from the machine is attached at the handle end of the instrument by means of a small hole through the conducting wire or rod. The handle is turned, and of convenient size. The wood from the ball to the handle is well coated with sealing-wax varnish, and it is thus rendered a very neat and durable instrument. When applied to the womb, contraction immediately follows. The manner of making the application is as follows:—A piece of flannel, wet in alcohol or spirits, should be laid over the abdomen of the patient; on this the positive pole is to be held by an assistant, while the physician applies the instrument attached to the negative pole introduced into the vagina, and resting on the os uteri. Galvanism, may be employed, no doubt, with success and perfect safety in all passive forms of uterine hemorrhage; and in that common and most distressing complaint, prolapsus uteri, it will be a highly useful remedy. It should be remembered that the negative pole of the battery is attached to the uterine conductor, and the positive applied to the abdomen just above the pubis. Galvanism is useful in dysmenorrhœa.

Medical Times, Aug. 12, 1848, *p.* 240.

160.—*On the Frequency of Flexions and Versions of the Uterus.*—By Dr. Ashwell.—[Dr. Ashwell, it will be seen, does not agree in the opinions which have recently been so widely promulgated, respecting the frequency of displacements of the uterus. He says:]

I have carefully read all which has been recently published on retroflexion of the uterus, but I am still unconvinced as to the supposed frequency of this and the related forms of displacement. I do not agree in Dr. Simpson's opinion, "that these displacements of the unimpregnated uterus, known by the names of retroversion and retroflexion, anteversion and anteflexion, are very common, and which, from the want of any proper means of diagnosis (the uterine sound), had been almost constantly mistaken for fibrous, carcinomatous, and other tumours situated between the uterus and rectum, or between the uterus and bladder."

It is scarcely possible to suppose that any one, with the slightest share of obstetric knowledge and tact, *could* mistake these maladies for fibrous or cancerous tumours, especially when placed between the womb and rectum, or the womb and bladder. In my experience, these diseases are far too serious to allow much hesitation either as to their locality or their symptoms. It is happily otherwise with the supposed very numerous cases of anteversion and retroflexion of the uterus,—cases in which the uterine bougie, (according to Dr. Simpson,) "by showing the direction of the uterine cavity, and hence of the uterus itself, and by its enabling us, when it is introduced, to change at will the position of the organ, affords a simple means of detecting these displacements."

Of such instances, it is fortunate that the results are not always serious; for Dr. Rigby remarks, "the above case," *(one of retroflexion)* "presents several features of interest. In the first place, a considerable degree of retroflexion is ascertained to exist, without its producing any derangement or inconvenience whatever; the only change which could have been attributed to it, was the circumstance of the catamenia having been rather more profuse since her marriage. No trace of dysmenorrhœa or ovarian irritation had existed, not even the slightest degree of pain or uneasiness about the pelvis, nor was she at all aware of any difference in her feelings, either after I had replaced it, or when it returned to its former retroflected condition."

May not this be equally true of most of these cases? I cannot avoid thinking that this uterine sound not only detects, but makes many of these supposed displacements. All practical men know that the uterus varies naturally in its position, in its degrees of mobility and immobility, and in the influence exerted upon it, as to position, by a loaded or empty rectum or bladder; and it must be kept in view, that the curve of this steel bougie may not be the curve of the uterus; and if, therefore, it is to be introduced at all, (and I wish it were far less frequently so,) the normal position of the organ, thus spiked, must be made to follow the curve of the iron instrument, entering, and thus unnecessarily intruding upon its cavity.

If we contrast the symptoms of these supposed cases with the symptoms of real retroversion, retroflexion, and anteversion, the difference is very striking, and cannot fail to induce the conclusion that the uterine sound, an unusual degree of mobility of the uterus,

and a too slight acquaintance with the normal varieties of the curve of the womb, have led to great error as to the frequency of these truly rare maladies.

I am the more induced to make these observations, by finding that the uterine sound and its twin instrument, invented by Dr. Simpson for permanently fixing a piece of ivory inside the uterus, are not harmless, but, when used, really do mischief.

Dr. Hensley says, in reference to this uterine support, "that it should be adapted while the patient is in bed, and she should be kept quiet for some days, till the uterus becomes accustomed to its presence. I have known peritonitis induced by the neglect of this precaution." (This is rather a severe penalty to pay for the cure of such affections as those described by Dr. Rigby.)

Two cases have recently come under my care, and I have heard of more, where the results arising from the use of this instrument have been very serious. Looking at it pathologically, I can scarcely imagine anything better devised for inducing disease. According to this practice, a piece of ivory, two inches and a half long, is to be introduced into the uterine cavity, and its bearing must of necessity be on some part of the lining membrane, a surface ill adapted to support the pressure for two or three months together of such an instrument. The consequences may be supposed. One of the patients from whom, after a long and distressing journey, I removed this ivory one-pronged fork, told me she had never been free from pain since its introduction. In addition, it had produced frequent and intense sexual excitement, preventing sleep for many nights together, and had kept up constant leucorrhœal discharge. In the other example, during the two months this instrument had been worn, the sufferer, in addition to the previous complaints, had never been free from sanguineous discharge, lumbar pain, and frequent desire to micturate. In both, the speculum showed that abrasion of the os and the ostium vaginæ had resulted from the use of the so-called uterine supporter.

Lancet, Sept. 9, 1848, *p.* 291.

161.—ON A NEW PLAN OF TREATING OVARIAN DROPSY.

By Dr. E. J. Tilt, Physician to the General Farringdon Dispensary.

[In imitation of the method by which Nature has wrought a cure in the cases of spontaneous rupture of the cyst, per abdomen, Dr. Tilt proposes]

1. To establish solid adhesions between the peritoneum covering the cyst and that lining the abdomen.

2. To effect the smallest possible ulcerative opening of the cyst through the centre of these adhesions.

3. To keep the cyst always full, and only relieve it of the overplus of fluid by which it is distended.

1. The necessity of establishing solid adhesions between the peritoneal covering of the cyst, and the peritoneal lining of the abdomen is obvious, for by these means the contents of the cyst can be removed without their falling into the peritoneum. To effect these adhesions various plans have been proposed.

Vienna paste has been frequently made use of with success in cases of hydatid cysts. I might relate a case which occurred in the practice of Professor Recamier, wherein its repeated application did not produce the desired adhesions, but it may generally be depended upon. An additional reason for adopting the use of Vienna paste is, that by weakening of the abdominal parietes in one particular point, it allows the internal pressure of the contents of the cyst to find a vent by its ulcerative opening.

Others have tried to promote adhesions by passing needles into the cyst per abdomen; but, independent of the dangers of this treatment, it is afterwards necessary to open the cyst with the bistoury, and such an opening would, as I before said, be followed by the ingress of air, inflammation of the cyst, &c. &c.

The same observations apply to a plan of curing hydatid cysts of the liver, successfully performed by Dr. Begin, which has also been proposed for the cure of ovarian dropsy.

2. The second object I have in view, is to effect the smallest possible opening in the centre of the adhesions. Here it is obvious that the bistoury and the trocar must be rejected, and that the opening must be the result of the process of ulceration. The opening should not only be small, but valvular, self-closing, resembling, to certain extent, the outlets of the excretory canals of the human frame.

I recommend Vienna paste, because the opening that has followed its application has presented all these characters, and I anticipate a similar result in other cases, provided the quantity of the caustic is not too considerable, or the application of it too often renewed. There is every reason for believing that, in such cases, the internal distention of the cyst will be sufficient to produce its opening, when the progress of ulceration has destroyed the natural cohesion of its tissues in some particular point.

3. The third object is to keep the cyst always full, and only to relieve it of the surplus of its contents. This, I may say, is founded on a a principle of surgery which forbids the emptying of the contents of shut cavities, if the ingress of air is imminent. It not only holds good in hydatid cysts of the liver, but also in hydrothorax. It is evident that any instrumental opening will afford greater facility for the emptying of the cyst, and also greater facility for the ingress of air into its half-emptied cavity; whereas, by the valvular opening which is the result of ulceration, the sudden emptying of the cyst will not be possible; it will only be relieved *per stillicidium* of the overplus of liquid which distends its cavity.

Though the cyst remains full, as its walls are no longer distended by any internal pressure, they naturally contract, and the cyst diminishes. It is necessary to state, that the fulness effectually

hinders the ingress of air into its cavity, an accident so much to be dreaded when the internal surface of the cyst is newly laid open; though, as far as my experience goes, it is not attended by any alarming symptoms at a later period, when the lining membrane of the cyst has been modified by the secretion of muco-pus.

Having stated what are the objects to be effected, and the means by which they *may* be effected, I will proceed to give some further practical hints with respect to the treatment of ovarian cysts by an ulcerative opening.

I consider this plan of treatment useful only when the cysts are *monolocular;* and as the best modes of investigation are not sufficient to establish an accurate diagnosis of the peculiarities of ovarian cysts, I preface any attempt to a radical cure of ovarian dropsy by ordinary tapping. By this preliminary step we ascertain the nature of the fluid, the amount of solid deposit in any portion of the parietes of the tumour, and we are also able to test the degree of tendency to inflammation of the peritoneum in the case under treatment. If tapping gives rise to inflammatory accidents, I consider the case unfavourable, and proceed no further. If tapping is well borne, if there be no great amount of solid deposit, and the cyst be monolocular, I wait till it has refilled to half the size it had attained when the patient was previously tapped.

The choice of the spot most favourable for opening the cyst will vary according to the peculiarities of the case. If in any portion of the abdomen fluctuation is more superficial, and the abdominal parietes are thinner than elsewhere, that spot should be chosen for the opening. If this is not the case, the opening should be made an inch or two below the umbilicus, and on the mesial line. A certain portion of the Vienna paste is applied to the place of the abdomen chosen, so as to produce an eschar about the size of a half-crown. The eschar should be left to fall of its own accord: when that has taken place, another portion of the caustic must be applied to the abraded surface, if the thickness of the abdominal parietes should require it. This will not be often the case, and our application of the caustic will generally be found sufficient, the abdominal walls having become much thinner from over distention. Some days or weeks after the falling off of the eschar, an ulcerative opening will take place, "*suâ sponte*," and not by any surgical interference.

When once the opening is made, the contents of the cyst ooze out: at first, in very considerable quantities: but the discharge gradually diminishes. Abdominal pressure becomes an indispensable adjunct of the treatment; it should be made use of with the view of giving support to the weakened parietes of the abdomen, without any intention to empty the cyst; it should therefore be moderate at first, and be gradually increased, until the cyst, having been emptied of the fluid it originally contained, and being too large a receptacle for the amount of liquid secreted by the lining of its internal cavity, requires to be diminished by all possible means. Then abdominal pressure should be made as strong and effectual as possible, and of course continued day and night.

We find injections are additional means of effecting our third intention. They serve a double purpose, not only enabling us to keep the cyst full, but also furnishing us with the means of removing from it the fœtid secretion which after a time will be generated in its cavity.

When should injections be made? When the fœtidity of the secretion is great, and on that account will most probably cause the inflammation of the cyst, and perhaps the infection of the system by resorption of foul matter.

What should be injected? A solution of honey, in water or barley-water, has been injected in hydatid cysts, and with advantage. I have myself injected a solution of honey in ovarian cysts, but have not been sufficiently pleased with the result to do so again, and can therefore recommend nothing but tepid water.

Mode of making Injections.—In this instance we may safely say, that success depends on attention to trivial circumstances. I must therefore enter into details. The point of an india-rubber tube, eight inches in length, and funnel-like in shape at its other extremity, must be gently passed through the opening into the cyst. The end of an ordinary syringe, filled with tepid water, is then fixed to the free end of the india-rubber tube, (care being taken that the syringe contain no air,) and the water is gradually injected, stopping now and then to allow it to find its way into the recesses of the cyst. In the first part of the treatment a large quantity of water might be injected, but a pint will be quite sufficient at a later period; the sensations of the patient will guide the surgeon as to the quantity. When she complains of a feeling of distention, the injection should be stopped; the syringe should then be separated from the india-rubber tube, and the water left a few minutes in the cyst. Gentle pressure should be made with the hand, laid flat on the abdomen; or, what is better, by the contraction of the abdominal muscles. On the patient being told to strain, the overplus of the contents of the cyst trickles out of the tube, and may be received in some vessel. No violent pressure should be made in order to empty the cyst, such pressure giving rise to considerable permanent soreness of the abdomen; and the emptying of the cyst must be followed by the ingress of air into its cavity. The amount of water injected will vary from a pint to an ounce, and in the latter part of the treatment may be made by the patient herself. When it has been once thought advisable to make injections, they should be continued regularly every day, at the same hour, before breakfast; and if the fœtidity of the secretion should require it, also before dinner.

Lancet, Aug. 26, 1848, *p.* 232.

[Dr. Tilt, in concluding his series of papers, makes the following practical deductions:]

1. That small and moderate-sized tumours may be cured by preparations of iodine given in large doses internally, as well as externally, the contents of the cysts being re-absorbed by the walls of the cyst, as in cases seen by Dr. Rayer and Madame Boivin, or

else voided per rectum, or per vaginam, as in many recorded cases.

2. That tapping per abdomen, if employed as a palliative, and without any view towards the radical cure of the patient, should be deferred as long as possible, modern statistics having confirmed Morgagni's opinion of the danger of this operation.

3. That when the cyst is voluminous, and felt bulging in the vagina, there is a sufficient number of successful cases to countenance the puncture of the cyst per vaginam, an India-rubber sound being left in the cavity of the cyst, and moderate pressure being made to the abdomen.

4. That the rupture of the monolocular ovarian cysts, with the effusion of their contents into the peritoneal cavity, instead of being attended (as is even now generally supposed) by the most alarming symptoms of peritonitis, is, generally speaking, unaccompanied by any alarming symptom whatever, thus warranting the subcutanean incision of the cyst—an operation which has been successfully performed.

5. That the ulcerative opening of the cyst, after the adhesion of its walls to the abdominal parietes, (the new plan of treatment I propose in certain cases of ovarian dropsy,) is supported alike by the complete success by which it has been followed, in the case I have recorded, and by the success attending a somewhat similar plan of treatment in hydatid cysts of the liver.

6. That ovariotomy should be reserved for cases of *multilocular ovarian cysts*, and those *monolocular cysts where there is a considerable amount of solid deposit*, unless, from their diminutive size, or the absence of symptoms, they do not menace the patient's life by their rapid increase.

Lancet, Nov. 11, 1848, *p.* 527.

[Dr. C. Clay, of Manchester, states that he adopted the ulcerative process as a means of cure in ovarian disease, some years ago. But, says he:]

There is a wide distinction between Dr. Tilt's method and our own, which it is only justice to state. Dr. Tilt establishes the ulceration by first attacking the abdominal parietes with the slow caustic called the Vienna paste, *and then* having exposed the ovarian mass, attacking *it* by the same means. We certainly lay no claim to this mode of producing the ulceration, and shall give Dr. Tilt quiet and undisputed possession of his discovery. It must also be remembered that Dr. Tilt proposes this means to supersede the necessity of extirpation, which he condemns as cruel in the extreme. On the other hand, we established ulceration in the cases previously given, because, having made an incision, with the view of extirpating, and finding the adhesions of so general a character, and so firmly formed, we judged it prudent not to proceed with the extirpation; but, to give the female some chance, we passed a large worsted tent into the *very interior* of the tumour, and succeeded in setting up an ulcerative discharge from the inner portions of the

mass through the parietes,—the worsted threads forming the medium which conducted the pus formed *outwardly*, and thus prevented its accumulation in the abdominal cavity, *the mischief of which is well known in the history of ovarian diseases.* We had the happiness to succeed in the two cases before alluded to, by the means we had adopted; and since our communications with Dr. Tilt have been made, *another successful case* has occurred to us. With regard to the cruelty of the two modes of procedure, as compared to each other, we cannot but think, on reflection, every operating surgeon will at once declare the plan we propose infinitely less painful and occupying much less time than the plan by the *Vienna paste, a remedy which we happen fortunately to know some little about.* Some years ago we introduced into England the mode of operation, as proposed by M. Laugier, of *Paris*, to destroy varicose veins by the slow caustic, *or Vienna paste.* This operation we have performed now fifty times, and always with success,—the cases turning out perfect and permanent cures. Many of them are reported in the Lancet of 1839-40 41-42. Notwithstanding all this, we were witness in *every case* of the most excruciating torture continued for many hours together, *and this only to effect the destruction of the coats of a vein on the surface of the integuments.* In respect to the plan of treating ovarian disease by this slow caustic, *first*, there is the opening to be made in the abdominal parietes, which must, as a matter of course, being of considerable thickness, occupy a very long time;—some hours at least—more likely many hours; and for the pain to be borne *the while*, we leave our readers to guess, hoping they nor their patients may ever have to experience such. Now, all this first part of the question by our plan is *settled by the scalpel in a few seconds*; and we argue, even if the operator *had no intention to extirpate, however favourable the case might be*, but was *bent upon the ulcerative mode for the tumour*, surely he would never occupy hours in going through the abdominal integuments, *and with great suffering to the patient*, if he reasonably could effect the same in a few seconds, and that without, or at least nearly without, pain. But to proceed. The opening being made, and the tumour exposed, Dr. Tilt then attacks the walls of the tumour (the least sensitive part) with the slow caustic. How long the process will be required to reduce a tumour from 60 to 70 pounds weight, *(which we have more than once seen,)* or how often this excruciating caustic may have to be repeated, we are not very much enlightened about. Then, again, the difficulty of keeping the ulcerated part of the tumour opposite the ulcerated opening in the integuments; the liability of the pus formed lodging in the peritoneal cavity, the probability of *Vienna paste* becoming half or wholly dissolved, and spreading to other viscera; the mischiefs, many and serious, that may arise from such circumstances. On the contrary, *we propose*, in the second stage of the operation, if the tumour is not adhered, *to remove it;* and if adhered, *not to a formidable extent, still to remove it.* But if so formidably adhered as to present insurmountable difficulties in the way of removal, *in such a case* we should consider

it our duty to lessen the volume of the tumour with the scalpel as much as possible; *(and we never saw a case where the tumour could not be lessened very materially, even from its interior,)* and *then* set up the ulcerative process by worsted bands from the interior of the tumour, where the seat of the disease is most active, and where its vitality and power of growth are soonest destroyed. The first opening, too, being always down pretty close to the pubis, and the worsted bands being brought out at the lowest point of the wound, there can be no accumulation whatever in the abdominal cavity; no mischief arising from the presence of pus in that cavity (often the cause of death.) We leave the question of choice to the profession, confident that the surgeon's knife is infinitely less cruel than any slow burning caustic, and immeasurably less dangerous to the patient.

British Record, Nov. 1, 1848, *p.* 366.

102.—ON THE USE OF BICHLORIDE OF MERCURY IN HYPERTROPHY AND INDURATION OF THE UTERUS.

By Dr. Oldham.

[In this paper, Dr. Oldham treats of the employment of bichloride of mercury in ulceration of the cervix uteri, and in engorgement of the womb, with enlargement, hardening, and often displacement backward. Respecting the latter disease, he observes:]

Chronic induration of the uterus, or hard engorgement, may be either (1) primarily an affection of the body of the womb; or (2) it may be induced from ovarian irritation; or (3) it may be caused by disorders of the digestive organs, in which case it is generally associated with a more or less copious elimination of lithic acid, and often with hemorrhoidal swellings.

1. The first class of cases are those which are most commonly met with in practice, and are immediately referable to labour or abortion. Numerous examples of this kind come under observation, where the venous circulation of the uterus never recovers itself completely, and the body of the womb remains large and congested. That which Lisfranc termed morbid hypertrophy persists; and in time the state of engorgement is replaced by induration and increased bulk of the uterine walls. It rarely happens that the structures which support the womb are able to sustain this increase of weight, and displacement of the uterus downwards and backwards is the general result. It is usually a slow process before the womb becomes indolently hard; but every stage of its progress may be traced by examination of the living subject. At first the organ is large, and more or less displaced; but by passing the finger to the upper and back part of the vagina, without touching the cervix, the patient lying either on her side or back, the swollen body of the womb may be reached, and examined

by itself. In this early stage, the uterus is painful when touched, and the structure gives a little when pressed by the fingers, and an attempt to replace it is attended with some immediate suffering. It is a very sure sign of a congested uterus when, in addition to any pain which its displacement occasions, it acquires a dull, or, in some cases, a lively sensibility when touched. When, however, the muscular tissue of the uterus has become indurated, and permanently bulky, it often loses this sensibility, and the finger, when pressed against it, detects only a hard, resisting, globular body, generally occupying the upper and back part of the pelvis. The size of the uterus and the character of the induration varies greatly. I have sometimes felt the posterior wall of the womb, thus rendered accessible to the touch by its retroversion, to be the volume of a moderate-sized orange, or even greater, without its enclosing any morbid growth, and the hardness to be in degree equal to that of true carcinoma; whilst in other cases the increase of bulk and induration are less in amount. These indurations and enlargements of the uterus do not occur, so far as my observation of their morbid anatomy goes, in patches so as to form knots or projections from the surface of the uterus, but it is evenly distributed over the entire organ; the only practical fact being, that a womb so affected sways backwards, and the natural convexity of the posterior wall becomes more distinct and very obvious by a vaginal or rectal examination. I have known this morbid condition of the womb to follow puerperal metritis, and also that far more rare disease when hysteritis has been excited by a sudden suppression of the menstrual flux, or the use of an irritating injection into the uterine cavity for some disorder of its lining membrane.

2. The second great cause of congestion and hardening of the uterus is to be ascribed to irritation and congestion of the ovary, in which the Graaffian follicles, with their contents, are necessarily implicated. The influence which the ovary has upon the womb when in a state of functional activity, as during the menstrual periods, or still more distinctly when disengaging the ovum which has been impregnated, is well known. It may be said, in a few words, to consist of great vascular turgescence, so that the walls of the uterus swell out considerably and soften, and its glandular system is evolved. It was after carefully examining specimens of the dysmenorrhœal membrane, and comparing them with some flaps of uterine decidua cast off in abortions, that I first discovered the identity of the two; and the pathology of the membranous form of dysmenorrhœa, with its attendant congestion and uterine enlargement, was satisfactorily explained. I have known several instances of chronic hypertrophy and retroversion of the uterus arise in the course of a long-continued membranous dysmenorrhœa: and with the physiology of the ovary to guide us, there is no difficulty in tracing the sequence and reciprocal dependence of the morbid actions. It is the ovaries, and not the lining membrane of the uterus, which is primarily in fault. These important organs, if morbidly irritated, whether from functional disorder at the menstrual periods,

in the vital act of oviposition,* or from sexual excitement, sympathetically congest the womb; and by the development of the uterine glands, the thin, transparent mucous membrane of the womb becomes raised into a rich, soft, cibriform membrane, which is cast off at the menstrual period. A continuance of the ovarian irritation involves a repetition of this process; while at every catamenial period a portion, or the entire of the altered mucous membrane is separated and cast off, the body of the uterus becomes permanently larger, heavy, and displaced. The uterus of a prostitute, as may every now and then be seen in the demonstrating rooms of our large public hospitals, is from two to four times the size of a healthy unimpregnated womb; its muscular tissue is as hard as a fibrous tumour; the mucous membrane of the body of the womb is opaque and flocculent; the glands of the cervix are large and filled out with tenacious mucous; the coats of the arteries are more dense and visible than usual; the capsules of the ovaries are thick, corrugated, and lacerated at different points; the Graaffian follicles are, some of them, three or six times their proper size, and filled with clear fluid or blood; whilst others are collapsed and empty, with thick opaque puckered tunics; and the intervening stroma is broken up by clots of extravasated blood in different stages of absorption. Over the whole of the internal organs—uterus, tubes, and ovaries—a complete web of false membranes is very commonly formed, which fixes the uterus immoveably in its semi-prolapsed or retroverted situation. Such an uterus affords a good example of the long continuance of ovarian excitement in transforming the contiguous sexual organs. Dr. Rigby entertains the opinion that retroflexion of the womb congests and chronically inflames the ovaries, and especially the left ovary, by mechanically pressing and irritating it; and the deranged and membranous discharge is the consequence of it. I am bound to say that I have never seen a single case where an ovary has been so imprisoned by a womb turned back as to justify this interpretation; and I cannot but think that Dr. Rigby's inference has been made rather to square with his views of mechanical relief in these cases, which it helps to support, than as reasonable pathological deduction. At the last menstrual crisis, when the ovaries show manifest signs of sudden and intense activity, engorgements and indurations of the uterus, with irregular and copious losses of blood, are common morbid conditions; and the various distressing symptoms which result from the mal-position of a bulky uterus, date from this time.

3. The last series of cases of venous repletion of the uterus, with subsequent enlargement, which I shall notice, are those in which

* In saying this, I must guard myself against assenting in full to the doctrines of Bischoff, Raciborski, Pouchet, &c., as to the spontaneous dehiscence of the vesicles at the menstrual period in the human subject. The theory is very alluring; but the appearance of early corpora lutea in the human female, when I have known conception to have very recently taken place, quite confound in my mind the inferences of those authors. I am quite sure that no such bodies appear in the ovaries after a menstrual period.

the internal sexual organs appear to be secondarily affected, the primary disorder being connected with the organs of digestion and assimilation. This is commonly induced by indulging in a too liberal, rich, and stimulating diet; with habits of inactivity and indolence, and a neglect of the habitual relief of the bowels; or it may be associated with an hereditary tendency to gout. Some protracted cases of congested uterus which I have treated have been manifestly caused by this condition; and I have frequently noticed its concurrence with copious deposits of uric acid, and the relief which the womb has sustained, when the kidneys have secreted a quantity of this material. One of the most troublesome accompaniments of this state is hemorrhoids; and I am desirous of noticing this symptom as the natural result of portal congestion, because it is too often, I believe, ascribed to the mechanical pressure of the congested uterus on the rectum. It may not be out of place here to remark, that of late years I have oftentimes found much immediate relief in congestions of the uterus by the employment of diuretic medicines. The use of gin and sweet spirit of nitre in mitigating the pain of dysmenorrhœa are popular remedies of this kind.

[Respecting the diagnosis of this affection, Dr. Oldham makes the following remarks: first observing by way of caution, that *used in an unrestricted manner*, Dr. Simpson's uterine sound is a *dangerous instrument.* Dr. Oldham says:]

To distinguish between fibrous tumours of the uterus, and chronic hypertrophy and induration, is, generally speaking, easy. The uneven circumscribed character of the growths, springing from the different parts of the womb, their hardness and insensibility, sufficiently characterize them. But if a fibrous tumour is developed in the centre of the posterior wall, and thus becomes covered with a shell of uterine structure, enlarged and changed as in pregnancy, the diagnosis is very difficult; sometimes even impossible. The tumour so placed belongs to the womb; and it may grow so evenly with it, and as a tumour, in every respect so closely resemble it, that no positive diagnosis can be made. Upon the whole this is a rare case; and it is of little practical consequence, as the treatment which may remove the one is the best that can be adopted to restrain the growth of the other.

Diagnosis from ovarian growths and tumours of the broad ligaments. —An ovarian cyst, in its earliest stage, is a round, hard swelling placed behind the womb, and pushing it boldly forward; and it is only at a later stage, when the fluid contents exceed so much the solid part of the tumour, that its cystic character is felt. It then, generally speaking, gets before and above the womb, which lies either to its side or even behind it. A hard strumous or fibrous tumour of the broad ligament is sometimes placed in close contiguity to the posterior wall of the womb, and directs the organ forward behind the pubes; and it is in their incipient states, before they have risen into the abdomen, that they have to be distinguished from the enlargement of the uterus. In many of these cases the

physical diagnosis may be made out by feeling the whole of the womb before the tumour, the cervix being close behind the pubes, and as far as the finger can reach, running vertically upwards, the fundus being perceptible just above the brim; and in others the uterus is felt to be small and quite moveable over the point of the tumor. Sometimes, however, the diagnosis is very puzzling, and these are the cases in which a cautious use of the sound may clear up the difficulty.

[The indications for *treatment* are mainly three; to reduce the size of the uterus, to strengthen the structures which have been weakened, and to improve the general health. To fulfil the first of these indications, we must use some form of local depletion, respecting which Dr. Oldham observes:]

Leeches, to the number of four or six, applied to the upper and back part of the vagina, and repeated according to circumstances, are, in my experience, the surest and most direct mode of topical bleeding. The class of cases in which this local abstraction of blood is required, is when the uterus is turgid and swollen, and painful from congestion; a state which precedes its hypertrophy and induration, or which may supervene on this latter condition, and greatly augment the volume of the womb. It is generally necessary to apply leeches once or twice a-week before this acquired congestion is dispersed, and they rarely fail to afford much relief.

Counter-irritants.—Blistering the sacrum, or painting the liq. vesicatorius over one or other of the inguinal regions, when these parts are the seat of continuous pain, is often followed by immediate relief, and promotes the reduction of the size of the uterus. It is very generally my practice, in the length of time which these cases are usually under care, to have recourse to these remedies; and sometimes, by dressing the blistered surface with some sedative application, to obtain an effective means of mitigating pain. The combination of powerful sedatives with a mild counter-irritant is very well secured by the following prescription, which I use habitually when the radiating pains are very severe:—Tinct. aconit. (Fleming) ʒ iv., ext. belladon. ʒ ss., lin. sapon c. ℥ iss. ft. linimentum. This liniment, well rubbed over the seat of pain, is generally useful.

[Dr. Oldham thinks the preparations of iodine of but little use in this affection, preferring much the mild preparations of mercury. He says:]

The oxide of mercury and Plummer's pill are amongst the mild preparations which I allude to; but the solution of the bichloride of of mercury possesses some positive peculiar advantages, in the facility with which it may be combined with other remedies, which, in my estimation give it a decided preference. It commonly happens that the health of females labouring under chronic hypertrophy of the body or of the neck of the womb suffers materially; and a reasonable fear might be entertained that the protracted employment of mercury would tend to increase this constitutional

feebleness. But, by combining the bichloride of mercury with any of the vegetable tonics, or a chalybeate, it will be found to promote and invigorate the general health, whilst its influence in reducing the hypertrophied tissue is sustained. It is this power of combination which renders it so suitable and efficacious in diseases of the uterus; and the solution may be given in doses of one or two drachms, twice in the day, for three, six, or even twelve months, to delicate females, without injuriously affecting them. It is a perfectly manageable remedy, and very rarely salivates, unless given in large doses, or the patient be excessively susceptible to the influence of mercury. For the last two or three years I have employed this remedy extensively, both at the hospital and in private practice, and the positive amount of good which it accomplishes, with the very trifling amount of evil, has led me to attach great value to it. The reduction of a large and indurated womb is generally slow, and the time which it takes varies extremely in different cases. In some cases its effects are comparatively speedy, and six or eight weeks will suffice to absorb and soften a considerable hypertrophy. A recent case occurred at the hospital, in which the patient had a heavy uterus, retroverted, and at the angle at which the body jutted out from the cervix was so acute as to give the impression, though erroneous, of a distinct flexion, to which the attention of my clinical clerk was particularly directed. In this case the uterus was greatly reduced, and spontaneously restored to its place, after she had taken the medicine eight weeks. In others a much longer time is necessary, during which the uterus becomes more free and moveable, and as it diminishes in bulk its malposition is less and less apparent. If the bowels are torpid, a little tinct. rhei may occasionally be added.

The foregoing observations on the use of bichloride of mercury in hypertrophy of the body of the uterus apply with equal force to the more common affection of hypertrophy and induration of its neck. The facility with which this part of the womb is seen by the speculum, and its comparative organic insensibility, has suggested the employment of a powerful class of local remedies, which, in similar diseases of other parts of the body, would hardly be entertained. The ordinary treatment of a simple granulating surface, perfectly healthy in its appearance, by means of nitrate of silver, either in solution or in the solid state, is the most harmless and the most generally useful of these local remedies. But when, in addition to such a surface, the deeper-seated tissues of the cervix become hard and massive from infiltration with the products of inflammation; and for the cure of it this part is recommended to be more or less destroyed by Vienna paste, the nitrate of mercury, the actual cautery, or potassa fusa; and that these measures are so assiduously recommended, and the manner of applying them so frequently demonstrated as to become familiar to every one; it is only right for us to ascertain whether a good deal of real though concealed harm is not mixed up with this apparent good; and whether other measures of a less formidable character may not be substituted for

them. When first these local escharotics obtained vogue, I ventured to express an opinion that the results of cicatrization would be found to damage the cervix, and substitute a more unyielding tissue than the hard one of chronic inflammation. I was informed, however, that, unlike every other texture of the body, a slough in the cervix uteri healed without a cicatrix-tissue, and that these powerful remedies might be used without the fear of immediate or remote danger. The experience, however, of a few years has convinced me that the hazards of irretrievably injuring the sexual passages, with other formidable symptoms, have been underrated. I have myself found, after the use of the actual cautery and the Vienna paste, very copious hemorrhages come on, when the sloughs have separated, seriously impairing the patient's strength, and requiring the plug and astringent applications to stop them. Metritis, with pelvic inflammation and abscess, I have known to occur; and from the migratory habits of hospital and private patients, I have, on several occasions, seen females on whom these operations have been performed by others with abundant traces of injury in the upper part of the vagina and cervix uteri. The latter I have felt decidedly contracted—I might say strictured—by the use of potassa fusa applied eighteen months before; and adhesions, and puckerings, and radiating cicatrices in the upper part of the vagina have, to my knowledge, resulted from the fluid escharotic escaping beneath the edge of the speculum, which, in spite sometimes of the greatest care it will do. Cases of this kind are sent away as cured, and the slow and painless process of cicatrization and contraction is neither watched or noted. I trust, in recounting these evils, I shall be acquitted of any prudish fear respecting the employment of these remedies, and, above all, of any disrespect to those who have so ably advocated them. But I cannot but think that we are pushing them too far; and the result of this conviction in my own practice has been very much to restrict their employment, and to select the cases with far greater circumspection than is either recommended by others, or formerly adopted by myself. Neither have I found such an amount of success result from them as others appear to have done; and when I have read of cases of ulceration, with chronic thickening of the cervix of long standing, cured in three or four weeks' time with very little else than the application of caustic, I have been forced to confess that similar cases, treated in the same way, have been under my hands for almost as many months. For some time past I have made it a rule to prescribe the liq. hydrarg. bichlor. in all cases of inflammatory hypertrophy of the cervix; and not only have I found it materially expedite the cure of such cases, but it has enabled me to dispense to a great extent with the local treatment, which with me is very much confined to the occasional use of leeches, and subjecting the hard tissue to the immediate influence of mercury, by the insertion of a vaginal suppository, made up of the ung. hyd. nit. Still cases do come under notice of incipient fungoid disease, or of everted labia, where the inner surface becomes nodulated and projecting like the commence-

ment of a morbid growth, in which the potassa fusa or acid nitrate of mercury are of the greatest benefit.

[The colon and rectum should be daily cleared out by the use of tepid or cold milk-and-water injections, long continued exercise or standing avoided, and sexual intercourse abandoned, or indulged in with the greatest moderation. The second indication, that of strengthening the structures below the uterus, is to be accomplished by the use of cold hip baths. Also, Dr. Oldham says:]

Suppositories of tannin, in the proportion of ten or twelve grains of tannin made up with honey, and passed into the vagina by the patient, after the bladder has been emptied, I have for a long time been in the habit of using; and the only objection which I have found to this otherwise convenient method of applying astringents is, that the suppository is apt to stick to the vaginal coat, and several of them will collect in the canal and cause much offensive irritation. They are not easily cleared away by ordinary washing, and the vagina requires to be syringed out with warm water every now and then.

Fluid astringents, as the decoctions of oak bark, tormentilla, &c., or solutions of sulphate of zinc, &c., if properly injected with an efficient instrument, are very serviceable for this purpose. But unless the patient clearly understands how to employ them, they are thrown up only a short distance and do not reach the roof of the vagina.

The walls of the vagina may be strengthened, and the uterus be in a measure raised from its altered position, by means of vaginal pessaries, whether of boxwood or caoutchouc; and until lately their employment was very general. About two months ago I saw one of the most efficient—a form of stem-pessary—which had been contrived by Dr. Blundell for a lady suffering from retroversion of the unimpregnated uterus. When first it was adjusted it afforded her much relief; but by and bye a yellow discharge, with much irritation of the external organs, began to alarm her, and when I removed it I found the cervix uteri swollen, tender, and ulcerating; and I was obliged to advise its discontinuance. Pessaries which support the womb through the medium of the vagina are open to many objections. The irritation which they are liable to excite in the vagina and cervix-uteri, which in some women is intolerable, bringing on diffuse inflammation with copious puriform discharges, which decompose and become horribly fœtid; the practical difficulty of adapting them to the different conditions of the vagina; and the fact that they are often allowed to remain in the vagina for months, or even years, when they become either so firmly imbedded there as to require much cautious management to remove them, or ulcerate deeply into the contiguous portions of the vagina, and even perforate the bladder or rectum; have induced many obstetric practitioners altogether to dispense with them. I believe that I do not now use one, where, a few years since, I should have employed at least twenty.

The form of mechanical support which I have found most generally applicable is a firm, well-fitting, elastic abdominal belt, to which is attached an under perinæal pad. This pad may be either shallow or deep: it may cover a small or a large space, and be so firmly pressed against the perinæum as to afford a very powerful support both to it and the vagina. The only inconveniences which attach to it are, that some women cannot bear the heat of such a pad near the external organs, and it is rather annoying in the summer weather; but these are but trifling objections which are easily overcome. It is not to be expected, if a womb is loosely supported, that this simple apparatus will put it into its right place; but it seems to raise the uterus somewhat, and relieve the strain upon its ligaments, and tends very much to its subsequent re-position. The comfort which it affords is well-marked, and, practically speaking, it is a most valuable support, while at the same time it is an important safeguard against a still further displacement.

For my own part I greatly prefer this form of external pressure, with the use of astringents, to any other method which has come to my knowledge. Dr. Simpson's uterine supporter, the principle of which is theoretically perfect, and highly characteristic of the enterprising intelligence of its inventor, I must candidly say that I dare not use. I was very much struck at first with it, and thought that it would supply a most valuable aid, not only for retroversion, but also for long-standing cases of procidentia of the uterus. When I tried it, however, I found that it required a good deal of manœuvering to introduce it, and that it set up considerable irritation of the uterus, peremptorily demanding its removal. I do not doubt, after Dr. Simpson's testimony, that the uterus of some women will tolerate this local irritant; but the chance of exciting such symptoms as I have witnessed from it, is, in my mind, conclusive against its general adoption, especially when other unobjectionable resources are at our command. I do not attach the same importance as Dr. Simpson to the replacement of the womb as a means of reducing its volume; and I feel well persuaded, that supposing there be any such advantage from this replacement, it is more than counterbalanced by the evil of having an ivory stem retained within its cavity.

Guy's Hospital Reports, October, 1848, *p.* 161.

163.—*Case of Secretion of Milk in an Old Woman, without Pregnancy.*—Reported by the Rev. W. Fitzpatrick, Culdaff, County Donegal.—Bell Johnson was married to a man named Williamson. The fruit of this union was *eleven* children in the course of *eleven* years. *Three* times successively she had *twins*. Williamson died; and after a widowhood of three and a half years, she was married to her second husband, one Bryan M'Carron, who is still alive. They have had *four* children. The *youngest* child is about *eighteen* years old. She had none subsequently. Her present age is *sixty-one*.

On the 16th of April, in the present year, her daughter Eleanor

died. This young woman was the oldest child of the second marriage.

Eleanor was married to one Andrew Porter; and, at the time of her death, left her only child, an infant of about *nine months of age.*

Bell took charge of the infant, her granddaughter; and, (strange to say) has *suckled* the child for the last *two months.* I was anxious to ascertain whether *irritation* of the parts had caused the breasts to fill with milk. She states that she never offered her breasts to the child, and that to prevent the attempt that the babe might naturally make whilst in bed with her, she reversed her shift, putting the back part to the front. She states that she *felt a pain in her breasts for about three days, and that they became full of milk.* Having mentioned this to her husband, he advised her to suckle the child, regarding it as a special provision made by God for the motherless granddaughter. My opinion is, that during the old woman's sleep at night, the child had the nipples in her mouth, until continued irritation produced this curious effect. *For the last eight weeks, this old grandmother, aged sixty-one, eighteen years after the birth of her own youngest child, constantly by night and by day suckles the child.* If she allowed one breast only to the child during the night, *the milk from the other would be flowing out in the morning,* whilst it would be fully distended. Unless the milk be drawn, she suffers *pain* from the *superabundant quantity.* The *quality of the milk is evidently not good.* To the eye it appears very heavy, as an intelligent mother described it to me. The child is now about *one year old,* healthy, but very puny; its flesh very soft, and not much of it. A child of six months would be much larger, and certainly lustier and more blooming. The old woman is very poor, and does not obtain sufficient nourishment to sustain such a burden, whilst the child seems very difficult to satisfy.

The above facts I either heard from the woman herself, or can state from my own knowledge. I examined the breasts, after having seen the child frequently sucking, and found that, *whilst easily emptied they soon filled.* I found, for example, that the breast previously exhausted was much fuller than that last drained. The interval was short.

The foregoing are the facts. I advised the woman to wean the child as soon as possible, for the reasons following.

Whilst I fully satisfied myself as to the facts, so as to be sure there was no imposition, I found that the want of due nourishment, and the unnatural abstraction of strength, has been detrimental to the old woman, and that the milk was not of a kind to do more than keep the child alive. *The deficiency was not in quantity but quality.*

Dublin Medical Press, Aug. 30, 1848, *p.* 130

164.—*On the Use of Stramonium as an Emmenagogue.*—By Dr. B. Jones, Missouri.—[Dr. Jones believes that stramonium is a real emmenagogue, and that it is the only one we have. In illustration of its use, he gives the following case:—A lady had suppressed menses after an attack of fever, and notwithstanding the use of all kinds of medicines, the suppression continued. At the end of four years, she came under the care of Dr. Jones, who prescribed in the first instance a purgative. He says,]

After the operation of the pills, I put her on the tinct. semin. stramonii, prepared by the following recipe:—

℞. Semin. stramonii, uncias iv.; alcoholis diluti, octantem unum. Digere per dies decem, et per chartam cola.

I directed her to take twenty drops, three times a day, for the first day, adding a drop to the dose each day, and to continue it, either until it produces dizziness, vertigo, or the *catamenia*. In ten days after I first saw her, I was summoned to her again, and learned that the day previous she had commenced evacuating blood from the bowels, in small quantities and at irregular intervals. I gave it as my opinion, that this was a vicarious evacuation, and the harbinger of a regular catamenia *per vias naturales*, and directed her to suspend the medicine for two weeks, and then resume it again in the same dose last taken, (xxx gtt., ter die), to be increased as before directed, and to report to me in two weeks thereafter. At the expiration of the two weeks from the resumption of the medicine, she reported a regular and plentiful catamenia. From this time she was perfectly regular, until she became pregnant, and in due course of time was delivered of a healthy child. She entirely regained her health, and has subsequently borne two other children. —*Western Journ. (Amer.)*

Dublin Medical Press, July 19, 1848, *p.* 40.

165.—*Cases of Hysterocele.*—By Joseph Bell, Esq.—[Hernia of the uterus, whether inguinal, femoral, or ventral, is a very rare occurrence, but Mr. Bell has met with two cases.]

Case 1.—June 2, 1843. I was requested to visit Mrs. P——, who had been eight days previously delivered of her fifth child. I found her much exhausted; pulse quick and small. She complained of intense pain of abdomen, on examining which the uterus was found protruding through a rent in the linea alba, extending from pubis to near ensiform cartilage. A portion of intestines was also protruded, but these were easily reduced; with the uterus, however, more difficulty was experienced. Compresses and bandages were applied, but had to be removed in consequence of the aggravation of pain which the pressure caused.

The patient died on the 4th instant. No post mortem inspection was permitted. She was a tall slender person, of a very relaxed frame; so far as I could ascertain, the hernia had no existence previous to her last confinement.

Case 2.—On the 5th of May, 1846, I attended Mrs. M——, at her fourth confinement. At five o'clock A.M., after a tolerably severe labour of sixteen hours' duration, a fine female child was born. As soon as the cord was separated, and the child handed to the nurse, in accordance with my usual practice I applied my hand to the abdomen, when, to my astonishment, I found the anterior superior part of the uterus protruded through a rent in the linea alba, which was completely torn through from the ensiform cartilage to pubis. The uterus felt so large and firm, that little doubt existed of its containing another child.

On making a vaginal examination, a second set of membranes was detected, on rupturing which the child was ascertained to present with nates to mother's abdomen. The uterus was pressed back into the abdominal cavity, and firmly maintained in this position with both hands until the child (a male) was born; this occurred half an hour after the first birth.

The conjoined placentæ came away immediately— the uterus contracted firmly, and descended into the hypogastrium.

A compress was placed on each side the rent along its whole extent, and a bandage firmly applied.

A smart attack of peritonitis occurred, but it was fortunately subdued by the ordinary treatment. Three months after delivery I carefully examined the abdomen, and could detect no trace of the rupture.

This woman is of small stature. The great distension to which the abdominal parietes were subjected from the uterus containing two very large children, must have stretched the fibres of the linea alba to the utmost extent, the contraction of the abdominal muscles during labour producing the complete separation of the tissues. The only circumstance which I noticed attending the rupture, was, that almost immediately before birth of first child, the patient complained of a burning pain in the abdomen and a sensation of faintness; but as the child's head was at this time partly protruded through os externum, and the complaint being made during the pain by which the head was wholly expelled, no attention was given to her statement.

I find a case related by Boivin and Duges very similar to that of Mrs. M——:

A woman who had been in labour three days, experienced on a sudden violent pain, with a sense of laceration in the abdomen, followed by extreme weakness. J. L. Petit found, on examination, a ventral rent or rupture extending from the umbilicus as far as the pubis, and another from the umbilicus to the ensiform cartilage. The lower one was so considerable that the recti muscles were separated from each other by a distance of nine or ten inches, allowing the uterus to completely protrude.

Monthly Journal, July, 1848, *p.* 12.

166.—ON MEDICATED PESSARIES.

By Dr J. Y. Simpson, Edinburgh.

In diseased states of the cervix uteri and vagina, medicinal substances had been applied locally to those parts under various forms, but principally, either in a solid state (as nitrate of silver, potassa, &c.), or in a liquid form (as in the great varieties of medicated injections in common use in leucorrhœa, &c.) When thus used, the local application was temporary, and applied for a few minutes only. But in various forms of disease it seemed an indication of no small importance to have the medicated substance applied continuously, and not temporarily. Medicated pessaries, which Dr. Simpson had first introduced into practice several years ago, and which had since been extensively adopted by various practitioners in London and elsewhere (see descriptions of them published by Dr. Stafford Lee, Dr. Oldham, &c.), enabled us to fulfil this indication. By their use, for instance, we could keep the cervix uteri, when ulcerated and indurated, constantly embedded in mercurial or iodine ointment for weeks, and sometimes with the most marked benefit and success. They fulfilled another indication in cases of irritation and inflammation of the mucous membrane of the cervix uteri and vagina. They kept the opposed diseased surfaces from coming in contact, and it was well known how important a matter this was in the pathology of mucous and cutaneous surfaces.

Dr. Simpson had been in the habit of applying a variety of substances in the form of medicated pessaries, particularly zinc and lead ointment, &c., as simple emollients; mercury and iodine as discutients (and particularly the iodide of lead); tannin, alum, and catechu, as astringents; opium, belladonna, &c., as anodynes. The pessaries were made of the size of walnuts, and could be easily introduced by the patients themselves; one or two in the twenty-four hours. They were composed of the medicine used, mixed up in the form of an ointment, and brought to a requisite degree of consistence with one or two drachms of yellow wax to the ounce of ointment. Messrs. Duncan and Flockhart, druggists, had found the following proportions requisite in the subjoined forms, (those in most frequent use in Edinburgh); and they might serve as models for the others. After being made up in the proper form, they were usually coated by the druggists with a firmer covering, by dipping them into an ointment made up with wax and resin, kept liquid by heat. About an ounce of the different ointments made four balls.

1. *Zinc Pessaries.*—℞. Oxydi zinci ʒj, ceræ albæ ʒj, axungiæ ʒvj, misce, et divide in pessos quatuor.

2 *Lead Pessaries.*—℞. Acet. plumbi. ʒss, ceræ albæ ʒiss, axungiæ ʒvj. misce.

3. *Mercurial Pessaries.*—℞. Unguent. hydrarg. fort. ʒij, ceræ flavæ ʒij, axungiæ ℥ss, misce.

4. *Iodide of Lead Pessaries.*—℞. Iodidi plumbi. ℈j, ceræ flavæ ℈v, axungiæ ʒvj, misce.

5. *Tannin Pessaries.*—℞. Tanninæ ℈ij, ceræ albæ ℈v, axungiæ ʒvj, misce.

6. *Alum and Catechu Pessaries.*—℞. Sulph. aluminis ʒj, pulv. catechu ʒj, ceræ flavæ ʒj, axungiæ ʒvss, misce.

7. *Belladonna Pessaries.*—℞. Extr. belladonnæ ℈ij, ceræ flavæ ʒiss, axungiæ ʒvi, misce.

Monthly Journal, June, 1848, *p.* 886.

167.—*New Form of Pessary.*—By Dr. Weir.—[At a meeting of the Edinburgh Obstetric Society,]

Dr. Weir exhibited a pessary for prolapsus of the uterus, which he considered useful from its cheapness, its lightness, and the facility of its introduction and retention. It was composed of a slender stem of light wood, from two to three inches in length, surmounted by a shallow cup (see figure), on which the cervix of the uterus rested. The lower end of the stem was furnished with a small knob or button, which, when the instrument was *in situ*, rested on a simple T bandage. This form of pessary had been used for some years by Dr. Weir, and by many others with the best results.

Monthly Journal, Sept., 1848, *p.* 198.

168.—*Cure for "Nurses' Sore Mouth."*—Dr. H. D. Holt states (New York Journ. of Med., May, 1848), that every case he has treated of this disease "has yielded within forty-eight hours to the use of iodide of potassium in gr. v. doses three times a day."—*American Journal of Med. Sciences*, July, 1848.

Medical Gazette, Oct. 6, 1848, *p.* 574.

169.—*On the Treatment of Sore Nipples.*—The tincture of catechu holds a high place, and has been found a very excellent astringent; like the other remedies of this class, it is best adapted for the simply excoriated or abraded nipple. Nearly similar to it is the solution of pure tannin, so highly recommended by Mr. Druitt. It is made by dissolving five grains in an ounce of distilled water. We have not observed it to possess any superiority over the catechu,

except in being more cleanly. The following is a favourite lotion with Dr. Johnson, who has been in the habit of using it for many years:—

℞. Sub-borat. sodæ, ʒ ii.; cretæ precipitat., ℥i.; spiritus vini, aquæ rosæ, aa ℥iii. M. fiat lotio.

This may be applied alternately with the following ointment, or the latter may be used alone:—

℞. Ceræ albæ, ʒ ivss.; ol. amygdal. dulc. ℥i.; mellis despumat. ℥ss.; Dissolve ope caloris, dein adde gradatim, bals. peruviani, ʒ iiss. M. fiat unguentum.

In some cases we have seen benefit result from the use of tincture of galls and compound tincture of benzoin (Friar's balsam), in equal proportions.

It is always well to have in mind a number of these different preparations, for it not unfrequently happens that one will answer our purpose when others have failed. For fissured nipples some authors strongly advise the application of solid nitrate of silver; but our experience does not permit us to speak of it. Dr. Johnson thinks it is sometimes a good remedy in such cases, at a remote period from delivery; but that during the puerperal state its use is not advantageous, as it is apt to be followed by mammary abscess.

Medical Gazette, Sept. 29, 1848, *p.* 556.

170.—*On Lymphatic Tumour of the Breast.*—By Dr. J. M. Coley, Physician to the Western Dispensary, &c.—The absorbent vessels on the upper part of the breast leading to the axilla are subject to a disease characterized by a painful, tender, and irritable swelling, and consisting of several cord-like indurations, at some times disposed in parallel rows, at other times connected after the manner of an anastomosis. Other parts of the breast are occasionally the seats of this affection; and in whatever situation it occurs the swelling is transverse, following the direction of the absorbents towards the axilla. On a superficial examination the tumour may escape detection; but it can always be discovered by taking the suspected part between the fingers and thumb. When the pain and tenderness are extreme, the absorbent glands in the axilla, and more rarely below the clavicle, become enlarged from irritation. These glandular enlargements always disappear after the original disease has subsided: the lymphatic swelling in the breast also frequently retires, leaving no vestige behind it. In extreme cases, however, a permanent thickening takes place, occasioned by the deposit of lymph in the cellular membrane. This disease usually attacks females between the ages of fifteen and thirty-five, and is liable to recur repeatedly, where the constitution is in the peculiar state predisposing to it. The condition to which I allude is that of comparative emaciation, accompanied with irregular or deficient menstruation, depression of spirits, and general debility. Hence suckling and chlorotic women are most frequently the subjects of attack. In some instances the patients are inclined to attribute the origin of the disease to external violence: in the majority of

instances, however, if not in all, it has appeared to me to proceed from imperfect menstruation. In one instance I had an opportunity of examining the uterus in a patient labouring under this disease, when I found the posterior portion adjoining the cervix in a state of congestion, presenting to the finger a doughy or anasarcous feeling. The size of the tumour in the mamma varies from that of an almond to that of an adult thumb; and the pain and tenderness attending it are of a remittent character. In some rare cases it attains nearly the size of a pullet's egg in large and plethoric mammæ.

One of these tumours, which was removed at the earnest solicitation of the patient, who had suffered severely from repeated attacks of the disease, was found, on examination. to consist of thickening of the coats of the lymphatic vessels, imbedded in a stratum of condensed cellular membrane.

As this affection is dependent on the state of the general health, and particularly on an imperfect performance of the periodical function of the uterus, its duration is uncertain. I have known it return in the same individual, and as repeatedly subside under proper treatment; and it must be observed that the swelling, pain, and tenderness, in most cases, uniformly undergo an increase on the approach of menstruation. The natural termination of the disease in severe cases, when the special treatment adapted for its cure is not employed, is in a painful and obstinate ulceration, which in external appearance has a considerable resemblance to that proceeding from scrofula, the absorbent glands in the vicinity being enlarged, tender, and painful, and the discharge copious. Before ulceration commences, the cellular membrane subjacent to the skin becomes indurated; this induration is gradually softened, the skin assumes an inflamed appearance, and a small, chronic, scrofula-like abscess is the result. The ulcer which follows resists all local treatment until the proper constitutional remedy is adopted.

Diagnosis.—The discrimination of this disease from others resembling it is not difficult. From the chronic mammary tumour, described by Sir A. P. Cooper, it may be distinguished by the pain and extreme tenderness, by the vitiated state of the patient's health, by the absence of lobes and of any cyst, and by the disease invading the breast of suckling women more frequently than those of virgins. The condition of the uterus, too, is widely different: in the mammary tumour, a state of excitement prevails; in the lymphatic tumour, a deficient circulation takes place in that organ, manifested by the discharge of an imperfect secretion, or false membrane, from its mucous surface.

From the irritable tumour, and neuralgic state of the breast, this disease may be known by the transverse, parallel, or anastomising, cord-like bands, which are always present, by the remission of the pain and tenderness, and by the latter symptoms being confined, as far as regards the breast, to the immediate locality of the tumour. The diagnosis in the examination of very large breasts is sometimes difficult.

Treatment.—When the pain and tenderness are excessive, leeches and evaporating poultices may be applied to the integuments over the tumour. In general it will be found unnecessary to adopt any local remedies, as the pain is not acute, but usually of an aching kind, like that accompanying rheumatism or phlegmasia dolens. The patient should take some preparation of iron twice daily, have the bowels relieved by an aloetic aperient, if needful, and use a generous diet, and gentle exercise in the open air. Should suckling have been long continued, the infant should be weaned, especially if the patient has been the mother of many children. By attending to these directions the tumour will entirely disappear in a few weeks, or all uneasiness will be so far removed that the patient will feel no inconvenience from it, unless the constitutional and uterine derangement should recur.

Lancet, May 27, 1848, *p.* 579.

ADDENDA.

171.—ON CHOLERA.

[Out of the innumerable papers on cholera which have appeared in the Medical Journals, within the last six months, we have selected the following as amongst the most practical and useful. We would also refer the reader to some very interesting and practical papers on the same subject in our last volume, by Messrs. French, M'Coy, and Thorn, and Drs. Bell, King, Massy, Turnbull, Ward, and Watson. It would be useless at present to occupy our pages with the different views which have been published respecting the supposed pathology of this disease. A few introductory remarks, however, may not be inappropriate.]

Dr. Laycock, York:—

[After remarking that the main questions at issue respecting cholera are apt to be lost sight of in discussions respecting the mode of transmission of the virus, and minute details "as to the escape of one person from the disease, and the attack of another by it," Dr. Laycock proceeds to say:]

What are the universal facts observed with regard to cholera? In the first place, many are attacked, but a greater number escape —and why? See what an important question this in prophylaxis: for if you can put a whole population into the same situation as that portion is in, which escapes, the disease is extinguished. In the next place, as a general rule, it begins with sporadic cases—droppings, as it were, before the thunder shower—in the locality about to be affected; and it gradually increases in intensity until it attains a climax, and then declines—and why? Here is another important question; for if we can induce the same circumstances at the outset, which occur at the decline of the disease, it need never appear except sporadically.

Let us first fix the meaning of terms to be used in our enquiry; for I believe three-fourths of the confusion which arises in the discussion, as to the spread of febrile diseases, arises from a misapprehension of terms. I have just used the term *sporadic*, it means scattered, dispersed, *disseminated*, (*Græcè*), cases, one dropped here and there, like seeds; thus, variola or scarlatina may be sporadic—there being a few dropping cases here and there. But if circumstances favour their spread, and if there be a number of persons predisposed

to be acted on by the contagious principle, then they will become *epidemic*—that is to say, *generally prevalent amongst the people:* for that is the meaning of the term. So, then, a disease is epidemic when it is generally prevalent, whether it be contagious or not. But what do I mean by contagion, you will ask? Why this—that there is a *materies*, either solid or gaseous, given off by or from the bodies of persons labouring under a disease, which is received into the blood of another person, and which, (if when received) it produces a morbid change in the blood, that change is followed by morbid phenomena, like those under which the originally diseased person laboured. Without these conditions there can be no contagion. Strictly speaking, the term means the communication of the poisonous *materies* by actual contact; but if the poison be in the atmosphere (as it is in the majority of contagious fevers), still it comes to the blood by contact—in fact, we may say by *direct* contact through the lungs. Contagion, then, or the production of the disease can only be *conditional;* if it were absolute and unconditional, the human race would by this time have been exterminated. Fortunately, the conditions the concurrence of which is necessary are so numerous, that it is only at intervals that that concurrence takes place and fever becomes epidemic at all, and even then only a fraction of the population are subject to its influence by presenting the necessary conditions. As the whole force of prophylaxis must, I think, be directed to the removal of these conditions, let us consider what they are.

[Dr. Laycock assumes, without discussing the point, that cholera is a contagious disease in the sense thus laid down. He then remarks, that as the *materies morbi* is generated in a diseased person, our *first* rule of prevention is to hinder *contact* of the diseased with the healthy; in other words to enforce quarantine. And *secondly*, as quarantine regulations will only *delay* the progress of the disease, the next step is to hinder the *transmission* of the poison from the sick to the healthy. It is pretty certain, Dr. Laycock thinks, that this transmission is facilitated by a damp atmosphere, which probably holds the poison in solution. He says,]

This being the case with the poison of cholera, not only will there be a more ready transmission through a damp atmosphere, but a larger quantity will enter the system at a given time, and in proportion to the quantity taken will be the poisonous effect. Cholera will, therefore, spread more rapidly—that is to say a *greater* proportion of persons will be attacked in a *less* time, in a low damp locality than in a dry high situation. The means of prevention in this case is to dry the air by every possible means, or else that the damp locality be abandoned; the latter would certainly be the most efficacious, though seldom practicable. The bedding and clothes of the patients and attendants should be kept perfectly dry; dry heat should be used in every possible way, and all open vessels containing water removed altogether from the apartment. Effective draining should be carried out; stagnant pools filled up with some dry ab-

sorbent material, to prevent the transmission of the poison to a distant locality (which I believe may be done by packing up some damp clothes fresh from a cholera patient, in a well-fitting box, and transmitting them per rail or otherwise); all articles of clothing should be exposed to as high a temperature as they will bear in a dry atmosphere; a blast of hot dry air upon clothing of this kind will, I have reason to think, effectually destroy the poison.

You may also dilute the poisonous atmosphere by frequently changing it, that is to say you must *ventilate* well. If you can ventilate with dry air, it will be better, but you had better use damp air freely, rather than shut up the poisonous atmosphere. You should prevent many persons being near a patient, or even crowding their apartments, for they not only abstract oxygen from the atmosphere, and displace a certain proportion of it, but they load it with vapour derived from their lungs.

[But, do what we will, we cannot entirely prevent the transmission of the poison from the diseased to the healthy. It will be absorbed into the blood of many in whom the symptoms are never manifested, in the same way as other fever-poisons, small pox or scarlatina for instance, are received, and yet do not act upon the system, because all the conditions necessary to their action are not present. In those cases where the cholera-poison does not act upon the blood, in accordance with its nature, in eight or ten days, Dr. Laycock thinks it probable that it is eliminated from the system by the excretions, probably through the mucous membrane of the intestines, a little diarrhœa being excited by it. The *third* rule of prevention, therefore, is, to facilitate the excretion of the poison, a principle which, Dr. Laycock observes, has been neglected alike by contagionists and non-contagionists. He says:]

I apprehend persons in perfectly good health, and using ordinary care in keeping so, will always excrete the poison and never have cholera: nature is quite sufficient, under these circumstances, to take care of herself. I apprehend, too, that persons only in moderate health, who attend to the ordinary rules of hygiene, will excrete the poison with very little constitutional disturbance—having, perhaps, a slight febrile attack ending in perspiration, or slight diarrhœa. These have the cholera, and may *communicate it*, too, totally unaware of the fact. Now, of course, popularly speaking, diarrhœa is not cholera; but technically speaking, it is quite as much an effect of the poison as the more violent symptoms; just as mercurial erethism is quite as much a symptom of poisoning by mercury as ptyalism or diarrhœa. And here let me advise you not hastily to conclude that the ordinary symptoms of cholera are the *only* symptoms produced by the poison; it may, and I believe does, produce symptoms altogether different from its commoner effects; and this is the case with all poisons whatever. The poison of erysipelas, for example, will excite puerperal fever. You may have measles without catarrh—scarlatina without a rash; and this leads me to remark how necessary it is to use the greatest caution in your conclusions

as to the symptoms produced by febrific poisons, and always remember that *one-half, at least, of their natural history is entirely unknown.*

If, then, when the cholera is epidemic, you have a patient with slight diarrhœa, but especially with rice-water stools, act as if the enemy were upon him. Now I dont think you should *instantly* check the diarrhœa, for I suspect it is an effort of nature to carry off the poison—not the diarrhœa, but that the poison is passing out by the intestinal canal, and irritating it as it passes. Moderate the irritation by gentle opiates; set up other excretions, as by the skin and kidneys; give your patient plenty of demulcent drinks, and of free pure air; charge him, as he values his life, not to irritate the gastro-intestinal mucous membrane, and, as an antidote to the poison in the blood, give a few doses of quinine, or the vegetable acids. The best formula perhaps would be, a grain or two of amorphous quinine with two or three grains of tartaric acid and a few minims of laudanum every six hours.

But suppose your patient have already disorder of the excretory organs, so that the blood is not depurated in the ordinary course of events, you have then a dangerous state of things, and one which will demand all your skill, *if* the greatest can be of any avail. If your patient have chronic disease of the intestinal mucous membrane, or of any of the principal viscera, but especially of the liver or kidneys, his exposure to the poison will most probably be followed by a violent if not fatal attack. You must therefore warn him to adopt all possible means of avoiding contagion. Patients with chronic disease of the liver and intestinal mucous membrane, and especially with Bright's disease of the kidneys—drunkards belong to this class—will suffer far more than any other class; and I am inclined to think few such receiving the poison will recover.

The exemption of persons engaged in chandleries and tanneries from the disease, points out their atmosphere as being prophylactic, —why, I cannot say. Persons highly predisposed, from the causes stated, might avail themselves of this hint. I am assured that the emanations from tallow are obnoxious to insect life, and therefore they have some virtue or activity as yet unknown to us, and are widely different in their nature from mere putrid emanations.

Now you may have all the functions going on with tolerable regularity, or at least without any marked irregularity, further than the sort of ill health which deficient diet, defective supply of atmospheric air, and the presence of malarious poisons, may excite, and yet such person be highly predisposed to disease. Any thing which lowers the tone of the system will give the poison activity: thus a great number of persons may have already received the poison into the blood, and it remains latent until the depression which precedes a heavy thunder-storm, or a fatiguing journey—as a march of troops, or the want of a meal, or excess in a meal after a long fast, will at once develope the morbid action of the poison. Those examples in which a number of persons have been exposed to the poison at the same time, and then to such an exciting cause as the preceding at the same time, have presented great difficulties to

a sufficient explanation, and have been called "nuts for contagionists" to crack; but you will, I think, find no difficulty in them whatever, if you have a clear comprehension of the whole subject.

The miasmata given off from feculent *debris*, as from privies or accumulations in the sewers, act as a poison, as I have previously shewn, on the intestinal mucous membrane; and, consequently, persons breathing air impregnated with such emanations are peculiarly liable to be rapidly affected by the poison of cholera. The reception of the latter is but the application of the match to a train already laid. I need not, I think, observe, that the removal of feculent accumulations, and of animal and vegetable debris, is an important point in prevention.

All the depressing emotions enable the poison, when received into the blood, to conquer the reaction of the organism against it, and to overcome the *vis conservatrix*. You will hear of people taking fright at the cholera hearse, or something of the kind—hardly suffering from diarrhœa perhaps—and go home, lie down, and die in all the agonies of the disease. Now such persons, if they had not had their vital powers so depressed by terror, would have resisted the action of the poison; for rest assured, that when a person dies of Asiatic cholera, he *must* have received a specific poison into his blood, however difficult it may be to account for the communication or reception of it. You might as reasonably say, that a person with small-pox had never received the contagion of small-pox.

What are the circumstances that lead to the decline of the epidemic? In the first place, all persons who have had an attack do not seem *immediately* liable to a second: then the highly predisposed have either died or had it; so that, like a fire, it dies out for want of fuel; or, thirdly, an atmospheric change may conjoin with the preceding, and the air becoming very cold and dry, puts a stop to the development of predisposing miasmata, and the more ready transmission of the poison. It is in this way all epidemics whatever come to a close, whether arising from miasm or contagion.

The grand object, then, in the prevention of cholera, is to remove as many of the predisposing causes as you can. Many of these are entirely within the power of man—indeed, all the most important: I mean those emanations which arise from over crowding or decaying debris, &c. With regard to cachectic and visceral disease, you can do little.

Medical Gazette, Oct. 27, 1848, *p.* 696.

Dr. W. G. Maxwell, Calcutta:—

The Progress of Symptoms.—What is cholera? is a question that has been asked a million times.

Cholera is the first stage of fever; the fever of a particular locality—the endemic fever, or the epidemic fever.

Fever is made up of various stages: the collapse stage, the shivering stage, the hot stage, and the sweating stage. All or each of these may be morbidly increased, constituting apparently different

diseases, but in reality linked together in inseparable union. It is the morbid increase of the first of these that I have now briefly to consider, viz., cholera morbus.

Here the fever never rises higher, it never reaches the shivering or the hot stages; if it does, it is no longer cholera; the fever has passed from the collapse into the other stages. Those who have had ague will comprehend the term "collapse of fever." They will recollect having had the paleness of the hands, feet, and countenance (and these generally tipped with blue); they will recollect the cold smooth feeling of the hands, the nervous sensations about the chest and stomach, and extending over the system. These, all or partly present, constitute what I call the "collapse of fever;" and this collapse of fever (in excess) is cholera morbus.

During the prevalence of the epidemic constitution, if an individual sojourn in a locality notoriously febrile, he will imbibe (what I will call for the easier comprehension of the reader) the epidemic leaven or ferment. Now, this ferment will take some time to display its full action, varying according to the quantity taken into the system; but it is generally in the middle of the night following that the effects are displayed; and it is an equal chance whether the individual sinks in the first or collapse stage, or rises from it into fever; hence the explanation of those cases, found in the morning in a high state of fever, which had been first reported as instances of cholera.

The development of the stages of fever entirely depends on the changes the leaven has effected. If this change has been such that the blood has become too thick to flow through the lungs, then, as a matter of course, the collapse stage is developed in excess; in other words, cholera asphyxia is exhibited. The blood, unable to pass through the middle passage into the arteries, collects and swells out the veins, giving that deadly or blue colour to the skin. When the vomiting and spasms come on, this mass of blood in the veins is squeezed with great force, and hence the clammy moisture that is forced from every part during these fits. There is no pulse, because there is no blood in the arteries. There are also lethargy and langour, and oppression in breathing, caused by the blood being all collected in the veins. These make up the principal links of the chain of mechanical symptoms. The other train of symptoms and associate symptoms arises directly from the stomach and bowels. I cannot say which are the most important; the neglect of either may be fatal. They, like the former, spring from the influence of the epidemic leaven. When the blood begins to thicken, that same moment all the functions begin to go wrong. The most important of all the functions, digestion and assimilation, are the first to feel the influence; in fact, it is difficult to define priority; the influence must be immediate, being part of the same circle. The derangement of these functions and the depravation of the blood advance mutually, as a matter of course; neither the one furnishing secretions to the bowels, nor the other nutrition to the blood. The inevitable, invariable consequence of this is the establishment of fer-

mentation of the contents of the stomach and bowels; the abdomen becomes swelled, and the stomach and bowels more or less uneasy; and this uneasiness increases exactly in proportion to the completeness of the changes the alimentary matters undergo. Nausea advances rapidly, followed by vomiting and purging; and, if there is not a free discharge both ways at first, spasms are induced by the irritating fermenting matters remaining in the intestines; if these are in the stomach or upper portions of the bowels, the spasms will be in the chest and upper extremities; if in the lower part of the canal, the spasms will be in the inferior extremities. Examination after death reveals the origin of these spasms in the mucous membrane of the bowels; it is found more or less destroyed in various parts, or covered with ulcerations in protracted cases. The contents of the bowels are found in a putrid state; there are no healthy secretions, and not a particle of bile—the preserving fluid of the intestines, the register of putrefaction. The moment it disappears, fermentation and putrefaction advance rapidly. Its absence is one of the links in the great chain; as also are all the effects resulting therefrom. There is not a single secretion carried on in fully formed cholera—for this plain reason, that there is no circulation, the blood is too thick to pass through the middle passage into the arteries; it remains in the veins, and during each fit of vomiting and spasm it is squeezed, as in a cheese-press, and the clammy moisture forced from it at all parts. Hence observe the chain of actions: the leaven leavening the mass, thickening of the blood, stoppage of digestion, fermentation of the alimentary matters, irritation of the mucous membrane, vomiting, purging, and spasm, all reacting, as it were, on the first symptoms, and increasing the thickening of the blood; all, in fact, parts of the chain linked together in inseparable union.

[The treatment of cholera is illustrated by Dr. Maxwell by an account of an attack from which he himself suffered. He had not been able to think of any appropriate remedy, and was denying himself the use of cold water, from an impression that it would be dangerous. At last, he states:]

The thirst, however, became worse and worse, and I determined to relieve it at all hazards, and not add misery to death. Having made up my mind, the next point was the choice of the particular beverage; there was plain water, whey and barley-water, gruel, congee, &c., wine and water, brandy and water, &c. To the last of these I had a repugnance, as every one has in fully formed cholera, and the others would require time and direction for their preparation, which my disease was not able to afford or I to give. Whilst thus ruminating my eye accidentally fell upon a packet of effervescing soda-powders standing among a crowd of other remedies and nostrums on the table. It immediately took my fancy; it struck me as the very thing I wanted, and without further delay pointed to it, and made signs for a copious draught thereof. It was soon made and soon swallowed; it was extremely refreshing and

agreeable, and the thirst was allayed; no nausea succeeded, and the pleasing anticipation remained of having a repetition of the draught whenever I desired. This I was not long in desiring; in fact, almost immediately after I swallowed another, and continued repeating it whenever the thirst became urgent. Instead of retrograding or remaining stationary, I began to improve; the stools became easier, and the spasms less vigorous and vicious.

I experienced an inclination to sleep, a desire to be covered up, and for something hot to drink (these are the best signs, they point out the disease escaping from the collapse stage). I had a large tumblerful of very warm but weak brandy and water made, and drank it off. I fell asleep, and had five or six hours of profound repose. I awoke bathed in perspiration, and, with the exception of a little stiffness and considerable thirst, I felt perfectly well. The thirst was again relieved by the effervescing draughts, and I followed up the principle with a couple of dishes of that most delectable and pre-eminent of all stomachics, tea.

Here ends my case, with the remarks thereon and inferences therefrom. I have only attended to the display of the principle of cure as best I could. Were I to begin with remedies, I might write till this time next year without advantage.

I do not say that the effervescing draught is the only cure, but it is one which carries out the principle as well as any I know, and it is agreeable and refreshing, and allays the thirst; can be taken in any quantity, and is efficacious. I have given it in various instances, in every stage, always with advantage to the disease and gratification to the patient; but from these only I do not judge, it is from having taken it myself, as I have described, that I feel authorized thus to speak regarding it.

Bleeding, both general and topical, may be necessary in cholera when there is much oppression, restlessness, pain, spasm, blue skin, or asphyxia; neither were necessary in my case. People do not die from being bled, even when unnecessary, but from bleeding being trusted to alone, while the principle of cure I have pointed out is not followed up.

Sinapisms and blisters to the legs, &c., for the relief of spasms are unnecessary; the origin of the spasms is in the intestines, as I have pointed out. Hot fomentations to the loins and stomach relieve the spasms of the legs. The wishes of the patient should be strictly attended to; nature is the best physician; if he wishes for cool air he must have it; if he desires to be covered up he must be so; many perish from being too much covered up at first, when the fresh air would revive them. Calomel and opium may be necessary in some cases; in mine they were not, therefore were not used. From it may be defined the nature of those cases that might require their administration. No harsh remedies will do in cholera; all must be of the mildest description—such as will pass in quantity gently along the bowels to remove the fermenting matters; and, above all, they must be such as will be relished and eagerly desired

by the sick, and such as can be constantly taken for the relief of the urgent distressing thirst, constantly present from the commencement of the disease.

Recapitulatory Summary.—I have endeavoured to make this key as concise as possible, consistent with utility. I think it will be found to embrace the most important points connected with the disease. Of all these, the irritation of the stomach and bowels claims the first rank, it is caused by the presence of fermented matters. The cure cannot be accomplished until they are removed or their acrimony altered, and this must be effected in the gentlest manner by copious diluents, as I have pointed out. I took, in my own case, the effervescing draughts, and I found them answer admirably; they were delightfully refreshing, and they passed gently downwards, removing the irritation in the bowels. I was solely guided by the thirst; it no sooner returned than I swallowed another tumblerful of the effervescing draught. After taking fifteen at least of these, always with relief and gratification, the disease began to rise through the other stages, indicated by the wish to be covered up, and for something hot to drink, as I have already described.

I will not say a word on the question of bleeding; it is impossible to lay down a fixed rule on this head, or to explain, within the limits of an epitome like this, all the circumstances connected with it; suffice it to say—1. That, if the natural diluent system is early had recourse to, bleeding will seldom be necessary. 2. That bleeding alone will not cure the disease—for this plain reason, that it cannot remove the fermented irritating matters from the bowels. 3. That the natural diluent system, if early and steadily persevered in, not only removes this irritation, but likewise prevents the further thickening of the blood. If these conditions and their effects, however, from the neglect of diluents or other causes, have become urgent, let blood be taken away; it will flow if diluents are now freely given, and the surface kept moist, according to the wishes of the patient.

Medical Times, July 22, 1848, p. 185.

POOR LAW COMMISSIONERS:—

[The following are the suggestions made by the gentlemen appointed by the Poor Law Commissioners to inquire into the condition of the metropolitan poor-houses with respect to cholera.]

1. We would urge the necessity in all cases of cholera, of an instant recourse to medical aid, and also under every form and variety of indisposition; for during the prevalence of this epidemic, all disorders are found to merge in the dominant disease.

2. Let immediate relief be sought under disorder of the bowels especially, however slight. The invasion of cholera may thus be readily and at once prevented.

3. Let every impurity, animal, and vegetable, be quickly removed to a distance from the habitations; such as slaughter-houses, pig-sties, cesspools, necessaries, and all other domestic nuisances.

4. Let all uncovered drains be carefully and frequently cleansed.

5. Let the grounds in and around the habitations be drained, so as effectually to carry off moisture of every kind.

6. Let all the partitions be removed from within and without habitations, which unnecessarily impede ventilation.

7. Let every room be daily thrown open for the admission of fresh air; and this should be done about noon, when the atmosphere is most likely to be dry.

8. Let dry scrubbing be used in domestic cleansing, in place of water-cleansing.

9. Let excessive fatigue, and exposure to damp and cold especially during the night, be avoided.

10. Let the use of cold drinks and acid liquors, especially under fatigue, be avoided, or when the body is heated.

11. Let the use of cold acid fruits and vegetables be avoided.

12. Let excess in the use of ardent and fermented liquors, and tobacco be avoided.

13. Let a poor diet, and the use of impure water in cooking, or for drink, be avoided.

14. Let the wearing of wet and insufficient clothing be avoided.

15. Let a flannel or woollen belt be worn round the belly.

N.B.—This has been found serviceable in checking the tendency to bowel complaint, so common during the prevalence of cholera. The disease has, in this country, been always found to commence with a looseness in the bowels, and in this stage is very tractable. It should, however, be noticed that the looseness is frequently unattended by pain or uneasiness, and fatal delay has often occurred from the notion that cholera must be attended with cramps. In the earlier stage here referred to there is often no griping or cramp, and it is at this period that the disease can be most easily arrested.

16. Let personal cleanliness be carefully observed.

17. Let every cause tending to depress the moral and physical energies be carefully avoided; let exposure to heat and cold be avoided.

18. Let crowding of persons within houses and apartments be avoided.

19. Let sleeping in low or damp rooms be avoided.

20. Let fires be kept up during the night in sleeping or adjoining apartments, the night being the period of most danger from attack, especially under exposure to cold or damp.

21. Let all bedding and clothing be daily exposed during winter and spring to the fire, and in summer to the heat of the sun.

22. Let the dead be buried in places remote from the habitation of the living.

By the timely adoption of simple means such as these, cholera or any other epidemic will be made to lose its venom; so true it is that, "Internal sanitary arrangements, and not quarantine and sanitary lines, are the safeguards of nations."

Lancet, July 22, 1848, *p.* 106.

Dr. Henriques:—

[Considers that cholera resembles miasmatic congestive fever in its intrinsic nature, and recommends the administration of quinine as soon as the prominent symptoms are developed: and as a prophylactic, in addition to the regimen ordinarily prescribed, he advises that two grains of sulphate of quinine be taken every morning for six or seven days, then suspended for the same period and again resumed, and that this plan be followed as long as the epidemic lasts.]

Dr. Kennedy, of Woodhouse, Leicestershire:—

[Recommends camphor and laudanum in small doses, antiseptic fumigations, and frictions with stimulating liniments.]

Mr. M. T. Sadler, Barnsley:—

Says, "that we have, from facts, very strong evidence to lead us to assign the specific cause of malignant cholera to some secret emanation from the lower parts of the earth, and that it is probably some agent analogous to electricity.

If there are *magnetic* storms, why should there not be *choleric* storms? To be able to account for the irregularity of earthquakes, volcanoes, or the motions of the magnet, science must pierce to the depths below, and be able to watch the mighty operations there going on. This, however, is beyond its reach; but amongst other conjectures, if we suppose there is, as Humboldt suggests, a molten mass of nearly eight thousand miles in diameter, within twenty-one miles below our feet, (put in motion, it may be, by the influence of the sun and moon,) we may then suppose an agent generated by some action of those perhaps perfectly-unknown materials, that may account for the dreadful malady which is the subject of my paper: and the varying nature of the strata of which the earth is composed may conduct it in an irregular form and manner to its surface."

The idea has been entertained by other persons, who have, however, not canvassed the subject at such length as Mr. Sadler: and doubtless in investigations into the still mysterious origin of cholera, and circumstances predisposing certain localities to its advent, geological as well as atmospheric conditions must be taken into account. In the endeavours to prove "that malignant cholera is infectious," and that simple diluents are amongst the most important accessories of the treatment, we conceive that Mr. Sadler is less happy. He remarks,—

"It is evident that in cholera the blood must lose a great part of its serous element; and pathological facts show, in examining the body after death, that the blood is 'of an oily or ropy consistence, very closely resembling tar or treacle;' this being the case, it requires but a very superficial knowledge of anatomy to convince any one, that blood approaching to this state cannot possibly circulate through the fine capillary vessels of the system, and if it does not

circulate through these, the blood cannot undergo its proper changes in the lungs; all secretions must be suspended, and death the result."

But it is equally evident that "simple diluents, as water," will not replace the "serous element" of the blood, even if the stomach can be got to receive and retain them. The advocates of the saline treatment, applied to the system by the various modes which have been adopted, will argue, and with some reason that the fluids they aim to introduce into the system, contain more of the constituents of the wanting serum than pure water, and are therefore more analogous to the materials demanded to replace the loss suffered by the circulating fluids. Mr. Sadler is quite right in adding, immediately after the passage last quoted, "Diluents *may not save* the patient in such a state of the blood."

Mr. GREENHOW, Newcastle:—

Observes, "One fact connected with the history of cholera is most important to be kept constantly in mind—cholera is *not a contagious disease.* It is incapable of being communicated from one human being to another, neither can it be communicated from the dead to the living. Ample opportunities of careful observation and investigation in 1831 and 32, convinced us of this great truth—truly great, as regards our conduct in reference to another visitation of this formidable disease. . . . . The danger is not from the *persons* of the sick, but from the *localities* in which they have been seized with the disease, the efficient cause of which, for the most part, settles down into hollows, the beds and margins of streams, and dirty recesses, into which a pure and wholesome atmosphere can scarcely at any time find its way. . . . . Such places, in a philosophical point of view, have a near resemblance to the celebrated *Cave of Dogs* in Italy, so fatal to the canine race, while man enters unharmed—simply, because his superior stature enables him to breathe an atmosphere untainted by the deadly vapour which, lurking in the lower part of the cave, is sure to kill his dog. As in this instance, so in the endemic cholera, there is a certain line of altitude, beneath which disease will certainly take place, in degrees proportioned to the predisposition or susceptibility of the inhabitants, which, in its turn, is dependent upon conditions already referred to; above this line, on the contrary, disease will either be entirely absent, or its occurrence extremely rare. . . . . Experience has proved that this noxious condition of the air cannot be purified by any artificial or chemical means that have been devised; and it is only by removing to a more healthy situation, on a higher level than the endemic line already referred to, that the inhabitants can be saved from disease and death. The manner of effecting this migration, or the removal, *en masse*, of the inhabitants of a locality so contaminated, whether by preparing beforehand temporary houses in an airy situation, beyond the boundaries of the town, or by pitching tents in such a situation, on the spur of the necessity, must be determined by committees of health and town councils, or

other authorized bodies. . . . . Whatever might be the cost, it would doubtless be greatly exceeded by that of providing for many sick persons, and for the burial of not a few of the dead. It may safely be laid down as a good practical rule, that the prevention of a great calamity is less costly than the loss sustained by its actual occurrence."

Dr. M'Cann:—

[Dr. M'C.'s treatment, which is highly lauded by Mr. Hodgson, of Birmingham, is the following:]

"*For Prevention.*—I recommend comfortable and nutritious animal food of the solid kind, warm clothing, and attention to regular hours, free ventilation and cleanliness; also lime-washing the dwellings of the poor. I advise abstinence from spirituous liquors, from all fruit and raw vegetables, from all salt fish and oysters—the latter especially,—from all excesses that debilitate the constitution; and, above all things, I deprecate the strong purgative medicines. When sickness, with derangement of the bowels is felt, the patient (if an adult) should mix a tablespoonful of mustard, or double that quantity of common salt, in half a pint of warm water, a third part of either to be taken every ten minutes until free vomiting be produced; after the stomach has been well cleared out with more warm water, thirty drops of tincture of opium should be given in a glass of brandy-and-water, to be followed up with a pill composed of five grains of calomel and two grains of opium; for an adult, small doses of these in the proportion of three grains of calomel and half a grain of opium to be taken at intervals of every two hours until bile is observed to pass in the evacuation."

Embrocations of heated turpentine, hot water in bottles or jars, bandages tightly placed around the seat of pain, and "from two to five drops of chloroform, in a little ginger tea or any warm fluid, as one of the most efficient agents in removing choleric spasm," are the other principal remedial means on which Dr. M'Cann places trust; and his treatment in the stage of collapse "is as nearly allied as possible to that of the early stage."—*Carlow Sentinel, Sept. 23rd. Lancet, Oct. 21, 1848, p. 451.*

Dr. Merryweather, Whitby:—

[The following case seems to prove pretty strongly the contagious nature of the disease:]

In 1832, I was called upon to visit a man of the name of Stonehouse, in Bake-house yard, of this borough, who had just been landed from a ship. I found it a decided case of foreign cholera, in a state of collapse, as cold as ice, and of a leaden hue. This was the first case in this town, and *imported*. I remember well telling Stonehouse's wife to be cautious, and not be too much about her husband, as it was not yet decided about contagion. The result was, that the wife took it and died the first. Here we have an

isolated case imported into a town that was free from cholera, and the very wife who was the nurse fell the first victim.

In 1833, this town was fearfully visited by Asiatic cholera, but owing to the valuable precautionary measures that were adopted at that time, and from the noble manner in which the rich came forward in aid of the poor, this scourge was wonderfully mitigated. My experience leads me to say that if every one would apply for medical aid immediately the premonitory symptom of bowel complaint comes on, there is nothing more easy to check. If the Board of Health were to placard all the towns and villages in Great Britain, cautioning and intimating to all the inhabitants, that the choleraic bowel complaint was equivalent to bleeding to death, applications would be made at once for medical relief, instead of medical men being applied to too late, when they too often are called upon to visit, and witness all the phenomena arising from the exudation of serum from the stomach and bowels, consequently arresting all other secretions: hence the frightful shock to the nervous system and vital powers.

Medical Gazette, Nov. 10, 1848, *p.* 812.

Dr. W. Reid:—

The affection commonly named the Rose, or Saint Anthony's fire (the erysipelas of systematic writers), has from time immemorial been classed amongst the *non-contagious* order or group of diseases; in short it has generally been considered as *not* infectious. *Three*, however, authentic, uncontested, and indisputable illustrations of the contrary have been noticed within the last thirty or or forty years, respectively in Montrose, Edinburgh, and the metropolis. Some twenty or thirty were affected in all, and if we recollect aright, some of these cases terminated fatally. But that does not in the least affect the question of infection.

The corollary or inference, then, is self-evident; for here is a disease, usually in its most ordinary form (and, as every person knows, it is a most prevalent affection) held as *not* contagious, propagated by contagion, distinctly through a series of three different groups of individuals, originating in *one* of each of these groups, in whom the original cause was altogether a matter of pure accident. What holds good, then, in this affection, may, until the contrary is demonstrated, hold no less forcibly in any other new disease, not generally deemed to be infectious. *The production, apparently, of a disease by contagion, does not preclude its origin from causes independent of any animal effluvium; and the generation of a disease from natural physical causes, would not appear to prevent the possibility of that affection subsequently acquiring infectious properties.* So that if we are brought in collision with a disease of such a *double* nature (if this expression be permitted), we shall have at once to fortify ourselves against the agency of the physical causes, and avoid, at the same time, free intercourse with the infected, if we desire to live secure from the disease. No one denies now the occasional production of

erysipelas by infection. The evidence of the production of cholera in a similar mode is fully as strong; still, the cholera may be, and in all probability is very much under the influence of atmospheric and terrestrial agencies; but so, likewise, is common continued fever. The cholera is not always infectious; but the *fact that it is so at times*, upholds the necessity of always being on our guard against that contingency occurring.

We consider that the proposition, also, may be held as established, that the identity of a disease, and its propagation by infection, are not to be reputed as absolutely essential in every instance; or, in other terms, it will be admitted, we conceive, that a disease may at times proceed distinctly and undoubtedly from infection; while under other circumstances, causes altogether of a different character may contribute to its generation. In the case of common continued fever, this seems to be undoubtedly the actual statement of the proposition. And precisely so do we conceive the evidence holds as regards the cholera.

It may not be contagious in one locality, while, in another, it displays that property in an exquisite degree. In the large and spacious dwellings of the rich and affluent, it may never assume that mark (analogous to typhus under these conditions); while in humbler and more crowded abodes of the dwellings of the poor, infection may be its most distinctive mark. It may, likewise, (to pursue the parallel) never attack, at least but rarely, the wealthy (analogous again to typhus fever, which rarely affects that class of society); while the poor, impoverished, over-wrought, ill-fed, depressed artizan, becomes its ready prey, as is sufficiently notorious in the case of our common fever. It may have one character in the tropics, and display another within the temperate circles, yet continue still the same affection. It not being contagious in one district, is no guarantee that it will not become so in another; for in the first many concurring causes might *not* exist, which may be met with in the latter.

From the data now enumerated, we think we do not rush precipitately to a conclusion when we assert that we have no positive evidence that *cholera* is *invariably* a non-contagious disorder; and also that, on the other hand, we have most satisfactory and indisputable grounds for saying that it has almost, in its first visitation of this country, uniformly affected the very same localities and tracts which are the unvarying haunts of typhus.

[Dr. Reid, therefore, concludes that as we cannot tell precisely under what limitations, to say the least of it, cholera is non-contagious, the more safe and judicious plan is to adopt precautionary measures. They can do no harm, and may be the source of much good.]

Medical Gazette, Oct 13, 1848, *p.* 635

J. G. FRENCH, Esq.:—

In 1832, I had the charge of St. James's Cholera Hospital. A matron was engaged,—selected, among other qualifications, for the vigour of her constitution, and temperate habits. She was forty years of age. Her duties were those of housekeeper, not of attendant on the sick. She had resided in the hospital for some weeks previously to the admission of any cases. The first case which was admitted was Mary Lee (aged thirty) on the 6th July. The journal of the hospital states that she had been nursing her mother, who had died the day previously of cholera, and was seized in the churchyard at her funeral. This patient died seventeen hours after admission, and was not seen by the matron.

The second case was Margaret Lidgate, aged nine, admitted on the 8th July, from the Burlington School, at 1 P.M. The matron immediately visited this child, sat with her, and rubbed her legs while she was in a state of collapse. About half-past five o'clock the matron (previously in excellent health) was attacked with cholera, and died in thirteen hours and a half.

I believe that the communication which the matron had with this patient was the real cause of her attack.

John Foy, a labouring man, was attacked while at work at Paddington, at two P.M. in August, 1833. Some of his comrades had become affected in this locality, and died. He was brought home to Ham Yard, Windmill Street. His wife was attacked after nursing him two days, and subsequently three cases occurred on the floor above that on which he resided. This is precisely the same kind of evidence as that on which the contagious nature of typhus rests.

Although these cases afford ample evidence, to my mind, of their contagious origin, I am by no means disposed to doubt that other and more numerous cases might claim their origin from other causes.

It may, however, here be remarked, with reference to the general question of prevention as contemplated by quarantine regulations, that it is highly doubtful whether any known or practised system of quarantine would prevent the introduction of a disease so universally admitted to be exclusively contagious as syphilis, should a new form of that disease, for the sake of argument, be the object of its laws.

The ideas, indeed, commonly attached to contagion are so exaggerated, that when diseases, supposed to be of this nature, are observed under ordinary circumstances, the evidence is so weak and doubtful, that men of considerable experience are led to form the strongest opinions that these diseases are incommunicable from one individual to another. Thus, the facts elicited by a careful inquiry into the history of the Eclair, were in direct opposition to the numerous opinions formed by men who had observed the disease, which was the object of inquiry, at different times and places. So, although Dr. Armstrong denied the contagion of typhus, the

Commissioners of Health, in a recent circular, declare it to be a "*highly* contagious disease."

The degree in which diseases are contagious is a question, indeed, of very great difficulty; but it is certain that the principal circumstances connected with it are, the denseness of the population, and the number of cases of the same disease crowded together, although it is a part of the history of disease that occasional outbreaks of unusual virulence will occur which defy all calculation.

The chief practical question, indeed, is, if diseases are deemed contagious, how are they to be disposed of.

It has been my practice for many years to separate, as widely as possible, cases of the same disease which are deemed contagious, and, I believe, with an undoubtedly good result. So, if there are more cases than one of erysipelas, or other contagious disease, I place them in different wards; and I am satisfied, from experience, that there is less danger of infection from increasing, as it were, a malarious area, than from the more concentrated taint occupying possibly a smaller space; and also that the cases themselves proceed more favourably.

Medical Gazette, Oct. 20, 1848, p. 675.

J. C. Atkinson, Esq.:—

I am desirous at the present moment of directing the attention of your numerous scientific readers to a very interesting phenomenon, more or less present in the collapse stage of cholera, which seems to have hitherto escaped the observation of medical men—viz., animal electricity, or phosphorescence of the human body. My attention was first attracted to the subject during the former visitation of that fearful disease in the metropolis. It was indeed singular to notice the quantity of electric fluid which continually discharged itself on the approach of any conducting body to the surface of the skin of a patient labouring under the collapse stage, more particularly if the patient had been previously enveloped in blankets; *streams of electricity*, many averaging *one inch and a half* in length, could be readily educted by the knuckle of the hand when directed to any part of the body, and these appeared, in colour, effect, crackling noise, and luminous character, similar to that which we are all accustomed to observe when touching a charged Leyden jar. I may remark the coincidence, that simultaneously with the heat of the body passing off, the electricity was evolved; and I am therefore led to ask the question—Are not heat, electric and galvanic fluids *one* and the same thing? Does not the fact of the passing off of both imponderable substances at one and the same time strengthen this conclusion?

Again: are not the whole of what we call *vital* phenomena produced by certain modifications of the electric-galvanic-magnetic matter and motions? and do we not find that these *vital* phenomena are continuously affected by the relative state of the surrounding electric medium? To what can we attribute the present fluctuating condition of the barometer, if not to it?

We *know* what wonderful *decomposing* action galvanism had on alkalies, under the hands of the illustrious Humphry Davy; but we do *not know*, nor have we any conception in the present state of knowledge, of the *decomposing* action of the electric matter of the atmospheric air, in various conditions, on the fluids generally of the animal body. Chemistry has failed in pointing out any ponderable material as the exciting cause of epidemic diseases.

In the treatment of cholera all are agreed that *non-conducting* substances on the surface of the skin aid essentially the cure; and during the disturbed state of the atmosphere, for the purpose of retaining the electricity continually eliminating in the system, we are told to wear woollen bandages, flannel, and gutta percha soles, so as to insulate as much as possible the body, to prevent the heat —the electric fluid—from passing off.

Lancet, Nov. 4, 1848, *p.* 504.

Sir James Murray:—

Says, "From the theory of cholera published in the London *Medical and Surgical Journal* 1832, and since amply confirmed in many parts of the world, it is to be concluded that the judicious use of long continued *galvanic passes* through the *respiratory* and *spinal nerves* is one of the most essential adjuvants that can be employed during collapse, or in that state of passive galvanic abstraction which *ought to be treated like suspended animation.*"

Lancet, Nov. 4, 1848, *p.* 501.

Dr. Joseph Ayre, of Hull:—

[Recommends the use of calomel in cholera, having tried it largely and with great success in the epidemic of 1831-2. He says:]

Calomel in one or two grain doses, taken with one or two drops of laudanum, and repeated every five or ten minutes, for several successive hours, with an occasional omission of the laudanum at intervals, formed my exclusive remedy for the blue or collapsed stage in all the cases I attended. I scarcely used a single auxiliary means of any kind. I neither bled, nor gave stimulants, nor emetics, nor used the air-baths, nor frictions, except to relieve the cramps, nor did I resort to any but the ordinary means for supporting the temperature or strength of the system. I gave only calomel, and in the dose and manner described, and placed no other limit to the use of it than that which was placed by the disease. So long as the disease in the collapsed stage continued, the medicine was continued; for pending the duration of that stage, I desire emphatically to aver, no absorption of the calomel takes place, and no ptyalism can occur; and when that stage was yielding to the remedy, I took the needful care to suspend the use of it. Of the patients whom I lost, the greater number died in the stage of collapse, and within from twelve to twenty-four hours from my first seeing them; and nearly all, if not all, from causes which were

superadded to the disease, and which, in most instances, might have been obviated by a more exact attention of the friends and attendants to their duty. Few, therefore, died in the consecutive fever, and of those who recovered, not one in ten had any fever at all; for it is one of the essential and distinguishing properties of this treatment, to prevent the occurrence of the consecutive fever, by its direct power to restore the secretion of the liver, which is alone required to put an end to the disease. I have already stated, that notwithstanding the very large quantities of calomel that are often needed, and taken in single grain doses, ere the collapse is subdued, no ptyalism or other inconvenient effect is ordinarily produced by it. Not one in twenty of my patients had any ptyalism at all; nor in the very few who had it did it last much more than a week, and not in any of them was there a vestige of it at the end of a fortnight. Indeed, after taking some pains to call to my recollection the number of such patients, I can only count up seven who could be said to make any complaint of it, and with those whose lives had been saved by it, it passed away entirely in ten or twelve days, and without producing, or leaving behind it, even the shadow of a shade of those effects which some might imagine to be inevitable, and in its anticipation bewail with profitless lamentation. In the way already described, I gave it alike to infants, though in a smaller dose, and to the aged, and in one instance, to a considerable extent to a woman ninety-two years of age, whom I found in the collapse stage, and nearly pulseless, who in a few days was wholly recovered, and who survived the attack no less than eleven years, having reached the advanced age of one hundred and three, and with a power to take out-door exercise up to a period very near her death.

In some cases it was taken in quantities the most considerable, and which nothing but the imminency of the danger from the disease, and the experience of its harmlessness could justify. By one man, Vaughan, a tramp, who was admitted into the hospital in the stage of collapse in its most malignant form, and who only emerged from it slowly at the end of three days, the immense quantity of five hundred and eighty grains of calomel was taken, and who, notwithstanding, without either fever or ptyalism following, was perfectly well, and ready to leave us in a week.

Lancet, Oct. 28, 1848, *p.* 472.

Dr. C. Patterson:—

[No remedy except calomel, Dr. P. thinks, can be relied on in cholera, when once the stools have assumed the rice-water character; the only difficulty is that its action is not immediate; and some remedy is therefore needed to delay the progress of the complaint until the calomel becomes absorbed. Such a one Dr. Patterson thinks he has met with. He says:]

Among the various remedies hastily tried, and as hastily abandoned, during the prevalence of cholera in 1831 and 1832, were

stimulant and astringent enemata. One of these was composed of sulphate of copper, sulphate of zinc, and alum; one scruple of each dissolved in two ounces of cold water. It is evident that this was not employed with any successful effect; for it was scarcely suggested, when it fell into disuse, and was forgotten, no mention of it having ever been made by any of the numerous writers who since have written on cholera. I was led to employ it late in the epidemic, which abated before I had time for sufficient experience: but what I saw left a deep impression on my mind, that it possessed considerable, though temporary, power in immediately restraining the alvine discharges, and was just the adjutor that was wanted to render the calomel treatment effectual.

[Accordingly in the second epidemic which attacked Rathkeale in 1833, this plan was tried, and the mortality *post hoc*, whether *propter hoc* or not, was very low. Dr. Patterson tells us:]

From the very onset, and in the first case that presented itself, that treatment consisted in the carrying out of the views I have already stated. I combined the employment of calomel, for the purpose of expelling the poison from the system, with the administration of the compound sulphate injection above described, for the purpose of restraining the discharges until the calomel should have time to act: and I proceeded thus—When a patient, passing dejections resembling rice-water, presented himself, I at once placed on his tongue five grains of calomel, and gave thirty drops of tincture of opium; and then, without a moment's delay, a nurse-tender who accompanied me, threw a wineglassful of the compound sulphate enema solution into the rectum: generally the injection was immediately returned with a large discharge of watery liquid, the contents of the rectum. The nurse, then, being instructed, without a moment's delay, threw up a second similar injection, which was, in most cases, retained by an effort of the patient's for a few minutes, and then came away, accompanied by a few ounces of the watery discharge. The nurse, then, instantly again repeated the injection, which, being within a few minutes, returned without any addition, she ceased to throw up any more.

At my next visit, I was in most cases met with the complaint, that the patient was extremely bad—"worse and worse," "going (or rather running) to the vessel every minute:" but on further inquiry, this running to the vessel always turned out to be nothing more than a troublesome tenesmus. The watery discharge was completely arrested, and the patient was not passing a particle of even liquid fæculent matter. He was told that this state was what was desired, and was encouraged to bear with it.

The tenesmus generally continued for a few hours, and then gradually abated, and in the great majority of cases there was no return of the watery discharge; while at the end of every four hours five grains of calomel were regularly placed on the tongue, until after three or four, or perhaps six or eight, such doses, the patient had a semi-consistent, dark green, or black biliary motion, followed

by others of a similar nature. These stools presenting no curdy appearance, as of a watery liquid separating from a thicker biliary matter, left no doubt that the cholera state was at an end. The calomel was then discontinued whether the gums had become sore or not, and thence forward, under the usual management, every such case in this visitation of the epidemic did well.

Most frequently no attention was paid to the tenesmus to abate it: for, as I have said, it was regarded as a favourable state; but sometimes the suffering of the patient from that cause would be very distressing. Then, after a reasonable delay, that it might not be abated too soon, a starch enema with laudanum was administered, and always produced relief.

In some cases, the tenesmus and arrest of the watery discharge immediately followed the first injection, and no second one was required.

It often happened that after two, or three, or more hours, the tenesmus would go off, and there would then be a watery motion, when immediately a compound sulphate injection would be again thrown up, and from time to time repeated instantly, as often as there was any return of the watery character; but this repetition was hardly ever required more than three or four times.

It sometimes occurred that the compound sulphate injection produced no tenesmus, and yet was followed by complete arrest of the cholera discharge, and there were instances in which the injection, even the first, was retained in the rectum. In these latter cases, after waiting from half an hour to an hour, I caused, lest any harm should arise from absorption of the copper, a large enema of warm water to be given. This always cleared out the bowel, and the case went on well.

There is an affection which was sometimes met in both cholera years, and which I believe has been generally regarded as fatal in its result. This is a discharge of pure blood, or bloody watery liquid, from the rectum, but it may be easily and effectually restrained by injections of solution of alum. Each injection should consist of three drachms of alum dissolved in half a pint of cold water. As fast as one injection comes away, while there is any appearance of blood, another must instantaneously be given. The nurse should be supplied with two or three pints of the solution, and the necessity impressed upon her of carefully watching the patient, and instantly administering an injection as soon and as often as it may be required. When the sanguineous discharge is thus suppressed it seldom returns; but if it should, recourse must again be had to the alum injections. I have never known them to fail in stopping the discharge, and when given in time, saving the patient.

In the bilious or fæculent diarrhœa which so frequently occurs as a precursor and concomitant of cholera, I have not employed the compound sulphate injection. In these cases I have been content with using the remedies usually recommended, but the moment the

stools assumed the rice-water character, I at once had recourse to the injection.

In employing this injection, it will not do to direct it to be given at prescribed intervals. It must be fearlessly and steadily repeated instantly after every motion exhibiting the watery character, no matter how numerous or frequent may be the calls for it. It is on this its success depends, and if there be neglect of observing this, nothing but failure of this powerful remedy in the hands of those who may so negligently employ it is to be expected.

In visiting the patients at their houses during the second epidemic, I had the assistance of Mr. O'Hanlon, a respectable apothecary of this town, who was very conversant with cholera, and who always accompanied me and witnessed the result of the treatment.

It should always be an injunction to the patient to retain the injection for a few minutes if possible. When given to children, it was always diluted with an equal proportion of water.

Dublin Medical Press, Sept. 20, 1848, *p.* 177.

G. J. Guthrie, Esq.:—

[A remedy supposed to be specific, has been employed for cholera, in the Russian army in the Caucasus. The authenticity of the documents from which the account of this plan of treatment is derived, is vouched for by Mr. Guthrie. This gentleman, in bringing the subject before the Medico-Botanical Society, said:]

This remedy was a singular one: it was naptha, exhibited in small doses of from ten to twenty drops; the dose being repeated if required, which was rarely the case. The naphtha that was used was not the ordinary naphtha of the shops, nor that recommended in the treatment of rheumatism and consumption; not the petroleum or Barbadoes tar, but a pure white or rose-coloured naptha, which is employed without being subjected to distillation. It is in all probability the mineral naptha which is obtained from Beku, on the borders of the Caspian. In order, however, to determine precisely the characters and properties of this mineral, he (Mr. Guthrie) had sent to Circassia to procure a bottle of it, and as soon as it arrived it should be placed in the hands of their secretary.

Mr. Guthrie then read extracts from letters from Dr. Andreyeoski and Prince Woronzow, the Russian Commander-in-Chief in Circassia.

Dr. Andreyeoski says, "naptha or petroleum, not distilled—and the white is to be preferred,—is an infallible remedy against the diarrhœa cholerica, which prevails during certain seasons, in the dose of from four to eight drops, in a little brandy, white-wine, or mint-tea, taken cold: a single dose usually suffices to arrest the complaint. The evacuations, which, in this species of diarrhœa, are always liquid and glairy, become more solid, and less frequent. Sometimes the dose requires repetition at the end of two or three days. The diet should not be too strictly, although carefully regu-

lated. In completely developed cholera of a deadly nature, the cures are not so constant, and from fifteen to twenty drops of the naptha are to be given for a dose. If they are vomited up, the dose should be repeated: a second is rarely required if the first be retained. It acts evidently on the skin, and on the kidneys, and removes the cramps."

In the first letter from Prince Woronzow, dated Tiflis, March 1, 1848, it is stated that "it is indisputable that most cholera cases begin with diarrhœa, and consequently it is most important to act immediately and energetically against the first symptoms; the experience of the last year has proved without a doubt that naphtha is the best and easiest remedy in diarrhœa, whether it be nothing but diarrhœa, or the first symptoms of ensuing cholera. Dr. Andreyeoski thinks that the diarrhœa which precedes cholera is always without pain; and it is then that naptha should immediately be resorted to; but in diarrhœa, with pain in the bowels, he always employs opium. He first met the cholera last year at Tamikhan, where it prevailed to a very serious degree; the hospital I visited contained the first day more than 200 patients; the cases generally were very bad, and the mortality great. On inquiring of the colonel commanding the Cossacks, why there were so few Cossacks among the sick, he told us that he made light of cholera, because they employed the elixir of Woroneje, which proved successful in every case. Andreyeoski immediately procured the recipe for the elixir, and on the first appearance of cholera in the convoy which accompanied me to the camp, he tried drops of that elixir, with constant success. On examining that prescription, he found it to be a singular mixture of different matters, looking very like a quack medicine, but containing among other strange, and, as he thought, useless substances, some specific acting favourably in cholera; and he told me that naptha, one of the principal ingredients, might possibly be that specific. The stock of elixir being soon exhausted, Dr. Andreyeoski determined to try naptha alone, and, as he expected, it succeeded even in severe cases, but in mere diarrhœa the success was immediate. He has, however, always resorted to the elixir, in cases to which he was apparently called too late,—in the blue stage, accompanied by cramps, &c.; but even in many of these advanced cases naptha alone has proved successful. I have seen several of our officers quite blue, and in extreme suffering, who were cured by it. As to simple diarrhœa, during the existence of cholera, I do not know a single case which the naptha failed to cure, when resorted to immediately." One of the Circassian chiefs was suddenly seized with cholera; before Dr. Andreyeoski could see him, he had been bled, and was in the last stage of the disease; he was ordered some rum, and had two doses of the elixir, which, with friction and warm clothing, restored him to life and health, but the convalescence was tedious. The naphtha must be the genuine white or rose-coloured, not black nor brown, nor distilled, as that would be much too powerful.

Extract from a letter from Prince Woronzow, April 20, 1848. "In sending you the promised prescription for Dr. Andreyeoski's elixir, I must add that he recommends frictions of every part of the body during a real attack of cholera, besides the use of the elixir, and warm baths also to alleviate the cramps. It must be remembered that in almost all cases the real symptoms of cholera are preceded by diarrhœa without pain, to check which the naptha drops have been without comparison the most successful remedy. If cholera appear abruptly, Dr. A. advises the immediate use of the elixir; if this be not within reach, then resort to the naphtha drops, as well as the warm baths, and especially to vigorous friction, to restore the circulation. Dr. A. deprecates all bleeding and mercurial medicines: if diarrhœa with pain occur, even in cholera times, Dr. A. treats it simply with opium, not considering it premonitory of cholera."

The following is the formula for the elixir of Woroneje:—Sp. vini rect. ℔viiss.; sal. ammoniac. ʒj; nitri depurati, ʒj, gr. xv.; piperis, ʒj. gr xv.; aquæ regiæ, ʒss.; acet. vini. ℔iss.; petrolei (napthæ), ʒss.; ol. olivæ, ℥ss.; ol. menth. pip. ℥vij.—Digere per horas xii. et cola; capiat coch. ij., parv. pro dosi omni quarta parte horæ.

Medical Gazette, June 23, 1848, *p.* 1089.

J. C. Atkinson, Esq.:—

[The cases in which this remedy is applicable, are stated by Mr. Atkinson to be those in which great flatulence and unpleasant eructations occur. He says,]

The material is named napthaline, (and seems an essential constituent of naptha); it can be procured from Mr. Hooper, of Pall Mall East, and doubtless elsewhere. It is pronounced the purest hydro-carbon, and most readily absorbs gaseous products, and putrescent materials of the intestines, relieving almost instantly the tympanitic condition of the bowels, so often present in that disease. This crystalline substance may be given in pills, in one or two grain doses, with opium, or aromatic confection; the latter, for the purpose of removing in part the unpleasant odour which seems peculiar to it.

I offer this remedy for trial, more particularly at the present moment, as carbon has been strongly recommended by Dr. Parkin; and as this is the purest hydro-carbon that we have, and again, because, naptha, (not the *medicinal* naptha, which after all appears to be only acetone,) has received some reputation for the cure of that formidable disease on the borders of the Caspian Sea.

Lancet, Aug. 19, 1848, *p.* 220.

Dr. J. Tunstall, Bath:—

[In reference to the use of petroleum, Dr. Tunstall, of Bath, states that in September, 1846, he wrote a letter to Sir C. Napier, which was extensively circulated in the East by Sir Charles's direction, and from which the following is an extract.]

The petroleum is a natural product found in many parts of the East Indies, in Persia, and in the island of Barbadoes, in various states of purity. A drachm contains fifty-two grains of pure carbon, with eight of hydrogen; whilst an equal quantity of any other substance, which could be safely administered, contains but five grains of that elementary body.

Pure petroleum is the only known substance which contains carbon and hydrogen, without the admixture of any other elementary principle, which is not the case with the other bituminous products: its peculiar efficacy depends on this binary combination, its curative powers resulting from the chemical union with those principles on which the morbid action depends, by its elements entering into new arrangements with the elementary gases eliminated by disease.

It is a mild though effective stimulant, antispasmodic and antiseptic, acting in the same manner on the absorbent vessels as mercury, without its deleterious effects; it speedily permeates the whole system, so that its odour is perceptible in all the animal excretions. Asiatic cholera is a disease requiring (as I can testify from my own experience in London and Edinburgh,) the most active diffusible stimulants to support the flagging energies of life; it is also a disease attended with an alteration and decomposition of the vital fluids. The observations of the celebrated Dr. John Davy, and of other eminent practitioners, have demonstrated that the respired air of cholera patients contains a much smaller proportion of carbon (that element which is discharged from the system during healthy expiration,) than is sufficient for the proper purification of the blood.

Now, in the petroleum, we have a medicine that acts primarily as a powerful stimulant, secondarily by supplying the system with its due proportion of carbon for excretion; while its effects being produced by means of the absorbent system, it acts beneficially as an antiseptic, preserving the frame from the rapidly fatal effects of this horrible disease by evolving carbonic acid from the lungs.

I have seen the petroleum used extensively, both locally and generally, and have never observed the slightest deleterious effects arise from its exhibition, even in comparatively large doses. I am induced to believe, from actual observation, that it is a most valuable diffusible stimulant, and that were it freely employed in the Asiatic cholera, it would produce marked beneficial effects.

To you, then, Sir, I would address those observations, which would more properly be addressed to the medical officers under your command; hoping, that by your kind recommendation, they may be induced to give this medicine a fair trial.

The petroleum used in England is the petroleum *(Barbadense)*, which contains, according to Dr. Ure and Professor Farraday's analyses, in 100 parts, 85·5 of carbon, and 14·5 of hydrogen, and by the latter it is called hydro-carbon.

It is important to guard against the employment of petroleum or natural naptha, containing any other elementary body than the two before mentioned. To prevent any error in this respect, perhaps

it is necessary to state that the petroleum *(Barbadense)* employed by practitioners in England, is a pure hydro-carbon; it will, therefore, be necessary carefully to analyse the native East India naptha before it can be safely administered.

The form of exhibition I would recommend is the following:— Take the yoke of one egg, and amalgamate with it a tablespoonful of the petroleum, and to it add forty drops of the aromatic spirits of ammonia, filling a wine-glass with equal quantities of brandy and water; and this dose may be repeated according to the emergency of the case.

Provincial Medical and Surgical Journal, July 12, 1848, *p* 390.

Mr. John Moore, of Bourton, Gloucestershire :—

[Recommends the use of turpentine on the following grounds:]

The most formidable symptom of cholera — that which most rapidly tends to produce fatal prostration—is the escape of the *serum and saline particles of the blood* from the internal surface of the intestines. Over this symptom turpentine exercises a manifestly powerful influence. Like another correspondent of the Lancet, (August 26th last,) I was led to administer turpentine internally in cholera by witnessing the salutary effects resulting from its external application, which by far exceeded what could be fairly attributed to counter-irritation; but though I have as yet prescribed it empirically, reason and analogy are not wanting to account for its efficacy.

Without speculating upon their nature and position, (which would be foreign to my purpose,) I apprehend that there can be no doubt that orifices naturally exist upon the internal surface of the intestines, through which serous exudation takes place. Internal hemorrhage may occur where no suspicion of organic lesion exists. In cholera, the *albuminous and saline particles of the blood* pass away copiously by the bowels, and no abrasion of their surface has been discovered upon post mortem examination. It is a fair assumption therefore, that by the same orifices which in their normal state instil serum into the intestinal canal, for the purpose of its lubrication, grosser particles of the blood may pass when the said orifices are relaxed by the depressing agency of the choleraic or other poisons. Then, as turpentine exercises over passive hemorrhages an influence almost specific, analogical reasoning might lead us to anticipate its tending to mitigate or arrest that exhausting effusion by the bowels of the nutrient portions of the blood which occurs in cholera.

Lancet, Oct. 28, 1848, *p.* 478.

Dr. C. Radclyffe Hall:—

[The treatment by tartar emetic which originated in Italy, was noticed in the Medico-Chirurgical Review, and came under the notice of Mr. Stott, of Manchester, by whom, and by others at his suggestion, it was extensively used in 1832. Dr. Hall, who observed Mr. Htott's practice, states that it was very efficacious. He says:]

The ordinary mode of proceeding was as follows:—Five grains of tartarized antimony were dissolved in half a pint of camphor mixture, of this an ounce was given every two hours. The patient was urged to drink freely of toast-water. Immediately, or in a short time after the first dose, vomiting occurred, and was encouraged by the toast-water. After a time, the patient usually objected to the copious drinking of the water, and required much urging to persevere. Perseverance, however, was strongly enjoined. It was noticed in nearly all the fatal cases, that the objection to continued drinking had not been overcome. This plan was unceasingly persevered with, presenting a scene of incessant drinking and throwing up, until the stomach became tolerant of both the antimony and the fluid. The mixture was then continued, with less drinking of toast-water, so long as the symptoms required it. Simultaneously with, or shortly after the cessation of, vomiting, the symptoms usually improved. The good signs were these—warmth of tongue; gentle warm perspiration, and secretion of urine; increased volume of pulse, subsidence of cramps and of diarrhœa, and less of the extreme dejection of mind: sometimes, a little bile in the matter vomited, or a bilious stool. The antimony was now discontinued, the patient allowed to remain quiet, warmth applied to the feet, and a little arrow-root gruel given, flavoured or not with brandy, according to circumstances. The patient generally fell into a quiet sleep, and awoke feeble, but feeling comparatively well and in good spirits. The action of the bowels was next attended to by giving castor oil, and very little other than hygienic treatment was needed subsequently. When the cramps attacked the abdomen, sinapisms were applied until the effect of the antimony had had time to remove them.

The advantages of this treatment were found to be 1, its superior efficacy as a means of cure; 2, its speedier operation in curing; 3, the absence of the fever of reaction, with its accompanying risk of pneumonia and other serious lesions—a result not ordinarily attending any of the other methods of treatment.

The *rationale* of this treatment—homœopathic in theory, heroic in practice—is easily deduced from the known pathology of cholera. All we know of the facts of cholera is summed up in few words. After exposure to the influence, the subject sickens, there is extreme prostration of mind and body, shock of all parts of the system, a check to all natural secretion, inability on the part of the vascular organs to circulate the blood properly, want of blood on the surface, superabundance of blood in the viscera, a gorged state of the internal veins, effusion of the serous part of the blood through the gastro-intestinal mucous membrane, and, consequently, serous vomiting and purging, deficient animal heat, and cramps. What, then, are the indications?

1. To restore the circulation by dislodging the gorged internal vessels of their contents, by sending blood to the surface, and so to gain time.

2. To follow Nature's indication of ejecting the *materies morbi*,

without allowing death to ensue in the meantime; or otherwise to follow, *to a safe extent*, Nature's own plan of action, until the morbid agency ceases to exercise its deleterious influence.

3. To restore fluid to the drained and inspissated blood.

4. To restore secretion.

Theoretically, we might have doubted the safety of exhibiting a prostrating remedy like tartar emetic in a disease attended with prostration, like cholera. On such a principle we should not bleed in peritonitis. But the prostration of cholera is kept up by the almost stagnant circulation in the capillaries, and the engorgement of the veins, conditions which antimony, when absorbed, has a tendency to obviate, and which, as an emetic, both mechanically and through the ganglionic nerves, it tends to overcome. The distinction between spontaneous vomiting and vomiting artificially induced must be borne in mind. The former exhausts far more rapidly and seriously than the latter. Tartar emetic never kills by vomiting. However, the discussion of the principle of administration is of very secondary importance to the practice, and it is on practical, and not on theoretical grounds, that I suggest a trial of the plan, should the expected opportunity occur.

It is well to bear in mind the points we *do not know* in the pathology of Algide cholera.

1. The nature of the morbid poison, whether electric, animalcular, malarial, or animal.

2. The laws of its transmission, whether as an epidemic only, or as an epidemic and infectious disease also.

3. The laws of its operation, whether imbibed into the blood through the respiratory and vascular mucous tract generally, or through the skin, or whether it act in some indescribable manner on the nervous system without necessarily being received into the blood at all. Assuming its reception into the circulation in the first instance—whether it merely mixes with the blood and suspends secretion and muscular power by its own action on secreting cells and muscular fibre, and nervous power by a similar action on nerve-cells; or affects secreting and muscular tissues only through the medium and intervention of the nervous system to which its direct influence, whilst circulating in the capillaries, is restricted; whether it changes the quality of the blood like the typhoid poison prior to acting on the solids at all, or whether it performs all these actions at one and the same time.

Whether the blood or the nervous centres take the lead in causing the phenomena,—whether the vitiated blood stops secretion, disorders the nerves, and irritates the muscles, or the checked secretion causes the accumulation of vitiating matter in the blood, —whether the serous discharge be a morbid secretion set up for the ejection of the morbid poison, or a mere transudation of the thinner parts of the blood from the distended portal venous system, —in practice we scarcely require the information to guide us. We have vitiated blood, internal congestion, torpid nervous energy,

feeble heart, checked secretions, and exhausting discharge, to contend with, whatever their mode or sequence of causation.

Many practitioners are sarcastic at the expense of the prescriber of "hot and cold in the same breath," and criticise unmercifully such a combination as that of ipecacuanha and dilute sulphuric acid. It may be worth considering notwithstanding, whether in cases of cholera attended with extreme collapse and want of pulse, the antimonial treatment might not advantageously be conjoined with the exhibition of ammonia, ether, brandy, or capsicum, the hot-air bath, or other internal or external excitant, with chlorate of potash or some other saline, or with the copious exhibition of whey, instead of toast-water, in the hope that any such animal fluid absorbed might better supply the fluid and the salts which the blood has lost.

Lancet, Sept. 16, 1848, *p.* 312.

Dr. Gavin Milroy:—

[Almost all the best practical writers since the days of Sydenham, have recommended that the vomiting should be at first encouraged by the use of mild diluents; but this has been chiefly with a view to the expulsion of offending matters. Dr. Milroy observes:]

Obstinate and protracted vomiting will not unfrequently yield to a full dose of ipecacuan, after opium, creosote, effervescing draughts, &c., have been ineffectually tried. In other cases, I have found it to be best relieved by the administration of a purgative enema; the forced action of the bowels downwards suspending the inverted action of the stomach and duodenum, and thus affording us the counterpart to the arrest of a diarrhœa by the operation of an emetic. In both cases, the simultaneous use of an irritating epithem to the abdomen will prove a powerful adjuvant.

I would remark, that the medical practitioner will find it most useful, in every severe case of cholera, to superintend the action of the emetic himself; and, in a season like the present, it will save much time for him to carry some tartrate of antimony, or, what is better, ipecacuan powder, in his pocket; a small phial of sal volatile also will be found very serviceable. Of course, the patient should always be in bed at the time: indeed, this remark is of universal application, as respects the use of emetics; otherwise, some of the most salutary after-effects of the vomiting will be altogether lost.

Medical Gazette, Oct. 27, 1848, *p.* 717.

Mr. T. E. Baker:—

[At a meeting of the London Medical Society,]

Mr. Baker (Bengal Establishment) said—It is now thirty years since I first saw the disorder. The treatment then strongly recommended was, scruple doses of calomel, with half a drachm or a drachm of laudanum, in peppermint water. This treatment was

often successful when the disease had assumed a milder form, but was very far from succeeding when it first broke out, and the patients would die in two, three, or four hours. We were not confident in any mode of treatment, but I think the most successful was an emetic in the first instance, which induced full vomiting, quite different from the spasmodic action caused by the disorder; afterwards, five grain doses of antimony, with or without calomel; bleeding; mild purgatives; flannel rollers to the extremities; lemonade, tea, plain water, or soda water. Full vomiting by emetics will often excite reaction, which seems the chief indication in our treatment. Bleeding diminishes the blood in the veins, and we find the venæ cavæ gorged with blood; the heart beats quick, weak, and indistinct; the breath is quite cold, for the blood does not circulate in the lungs. The tight flannel rollers relieve the painful spasms; they do not stop the circulation in the arteries, but may retard the flow of blood to the venæ cavæ, which we always find gorged. I much question the use of stimulants at any period of the disorder, though I have seldom seen marks of inflammation in the stomach where they have been given. There are often ecchymoses near the pylorus, which I considered to be the effect of spasmodic vomiting. We find the duodenum red and inflamed, and the inflammation appears to extend in proportion to the duration of the disease. The disorder appears to be the highest stage of congestive fever, and if we can succeed in making the blood circulate through the lungs, and consequently through the whole system, we have found a remedy for the disease. Though there are some symptoms similar to the cold stage of an ague, I do not remember to have noticed any tremor or shivering. In 1817, a medical friend of mine (Mr. Curling) found bleeding to be very beneficial, but in 1828, Dr. Mouat, surgeon, Her Majesty's 14th regiment, found it injurious, or at least of doubtful benefit. He also stated that some severe cases of cholera occurred in a native regiment, in which eleven men died out of twelve attacked. In these cases, there was purging without any vomiting, and to the best of his recollection (the patients not being under his care) there was a total absence of spasm.

Mr. Hird considered that emetics were useful in bringing on reaction. He referred to the plan of treating the disease by calomel and opium, as extensively tried in 1832. That plan had been found wanting. The experience of Dr. Graves confirmed this. He (Mr. Hird) had found no benefit from large doses of calomel or opium. The acetate of lead appeared to him to have the most effect in stopping the profuse alvine discharge. This medicine was given in doses of two grains with an eighth to a twentieth of a grain of opium, every half hour, according to the severity of the symptoms.

Medical Gazette, Nov. 17, 1848, *p.* 854.

Dr. Graves, of Dublin:—

[Dr. G. in his work on clinical medicine, advocates the use of acetate of lead and opium. He says:]—

The mode in which I administered it was this.—a scruple of the acetate of lead, combined with a grain of opium, was divided into twelve pills, and of these, one was given every half hour, until the rice-water discharges from the stomach and rectum began to diminish. In all cases where medicine promised any chance of relief, this remedy was attended with the very best effects. It gradually checked the serous discharges from the bowels, and stopped the vomiting. I need not say of what importance this is: as long as these exhausting discharges continue, as long as the serum of the entire body continues to be drained off by the intestinal exhalants, what hope can we entertain? What benefit can be expected from calomel and stimulants, when every function of the digestive mucous membrane seems to be totally extinguished, except that of exhalation, and while profuse discharges, occurring every five or ten minutes, are reducing the patient to a state of alarming prostration? Knowing the inevitable fatality of all cases where these discharges went on unchecked, I was happy at having discovered a remedy which seemed to possess more power in arresting them than any yet devised, and this impression was confirmed by the results of subsequent experience,

That the acetate of lead will succeed where all other astringents fail, was proved by the case of Mr. Parr, of this hospital. Having got an attack of threatening diarrhœa, at a time when cholera was prevailing in Dublin, this gentleman used various kinds of astringents, and took so large a quantity of opiates, that he became quite narcotized, but without any relief to his symptoms. When I saw him he was as bad as ever, and was beginning to exhibit appearances of collapse. I advised the use of pills composed of acetate of lead and opium, in the proportions already mentioned, and had the satisfaction of finding that before night the diarrhœa had ceased. The pills are to be used one every half hour while the diarrhœa remains unchecked, but as it begins to diminish, the intervals between each pill may be prolonged, and in this way the patient may be gradually prepared for leaving off the remedy altogether. I have frequently given in this way as much as forty grains of acetate of lead in twenty-four hours, with great advantage to the patient, and without any bad consequences ensuing.

It is unnecessary for me to say any more on this subject; if I chose to mention names, I could bring forward the names of many medical men in Dublin, whose lives, I am happy to state, were saved by the use of this remedy. I may, however, observe, that this mode of treatment has now become universal here, and that it has almost completely superseded the use of calomel and opium. I will confess that this fact is a source of high gratification to me, and I point also with pleasure to the fact, that since it became extensively known (as it did during the last invasion of the epidemic), the profession has gained more credit than before, and the number of cures has been proportionally greater.

I may remark that the most convenient way of making the pills is to add five or six grains of powdered liquorice to the scruple of

acetate of lead, and mixing into a mass by means of mucilage of gum-arabic. Year after year since I first made public the value of this plan of treatment in cholera, I have received the most gratifying letters as to its successful employment, from practitioners in India. The following observations of Dr. Parkes, who had the opportunity of witnessing two recent outbreaks of cholera in India in 1843 and 1845, while serving as assistant surgeon in one of H.M.'s regiments, I look on as a most valuable testimony. I quote from his essay on Cholera, to which I have already referred. At page 207 he says:—

"Of all the astringents which have been used in cholera, none has appeared so efficacious as the one recommended by Dr. Graves, viz. the acetate of lead. It is true that it did not arrest the purging in all cases, but it possessed this great advantage, that in the form of pill with opium, it did not seem to increase the irritability of the stomach, but rather to allay it. I used to give two or three grains with a quarter of a grain of opium, every half hour for the first two or three hours, and then every hour for a variable period according fo the intensity of the case. It was often found that the vomiting first ceased, and then the purging; the Algide symptoms were of course unaltered, but, as already said, no remedy yet known possesses any influence over them, and it is the best way to leave them altogether to themselves, and take the chance of their not advancing to their full extent. The only bad effect I ever noticed after the employment of these large doses of lead, was subacute gastritis; but this is a comparatively trifling affair, and can be generally overcome by relays of leeches to the epigastrium during the period of reaction."

Dr. Thom, surgeon of the 86th regiment, in an account of the cholera as it affected that regiment at Kurrachee in 1846, thus speaks of the combination:—

"The acetate of lead, in doses of one, two, or three grains, and one-eighth of a grain of acetate of morphia, was employed to stop those profuse watery dejections which continued in some cases after reaction had taken place; and in this point of view it was a most useful remedy. Of course in those cases where vomiting and purging are the first symptoms, and collapse appears to be their consequence, the early use of this remedy was resorted to, and with very good encouragement."

It is no small compliment to Dr. Graves, that the suggestions for the treatment of cholera patients, just issued to the Parochial Boards by the Royal Colleges of Physicians and Surgeons of Edinburgh, include among the medicines, the pills of acetate of lead and opium, which are directed to be kept constantly at each station. This will ensure a full and fair trial for this mode of treatment.

Medical Gazette, Nov. 3, 1848, *p.* 760.

Dr. E. J. Shearman, Rotherham:—

I have been much delighted and instructed by the perusal of Dr. Parkes' late valuable contribution to the little stock of knowledge we possess of the pathology of cholera; and cannot help remarking that, to me, his information appears more likely to be correct than that of any other author. I saw a good deal of it in 1832, and there is a truthfulness about his researches which carries conviction with them.

Dr. Parkes distinctly proves, that in the stage of collapse the right side of the heart does not empty itself; all the branches of the pulmonary artery are gorged to the greatest extent; there is no blood in the lungs; and the left side of the heart and arteries are empty; the serous, albuminous, and saline parts of the blood ooze through the different tissues, and are evacuated; the fibrine of the blood alone being found in the intestines.

Now this must be owing either to the choleraic poison having so chemically altered the blood that the oxygen of the atmosphere cannot act chemically upon it, and the venous blood remains in the pulmonary artery; or the choleraic atmosphere is of such a nature as to prevent the chemical combination of it with the blood of the individual in respiration. Unfortunately, Dr. Parkes had not the means of chemically and pathologically examining the blood of his cholera patients; but the *former* position appears the most tenable, from the immediate good effect produced by injecting a solution of albumen and salts into the veins, which, unhappily, does not last long enough to allow nature to weather out the disease.

When a case has reached this period, it is almost invariably fatal, for no absorption can take place, the venous system is full, and all medicine and nourishment introduced into the stomach must be useless.

But may not the red globules of the blood become poisoned and useless? And if so, what use would the albumen and salts be, if there were no oxygen carriers?

Reflecting on this subject since reading Dr. Parkes' work, I have made up my mind, should nothing more be discovered respecting the pathology of cholera, and considering the failure of every other mode of treatment, that I will treat any cases verging into the stage of collapse, by first taking away as much blood as I reasonably can from a vein in the arm, (no easy matter,) and then immediately transfuse warm blood from the most healthy subject I can meet with; and keep up respiration as long as possible with a mixture of equal parts of oxygen gas and atmospheric air. Although this will not dislodge from the branches of the pulmonary artery the poisoned blood, it must give nature a better chance of carrying on circulation and respiration, than by injecting merely albumen and salts, without any healthy red globules.

I think respiration may be carried on, in such cases, by using a modification of my friend Sibson's mouth-piece, which he invented

for the inhalation of chloroform: and oxygen gas can be kept ready prepared over water for a great length of time.

The first, or promonitory stage of cholera, requires merely common astringent remedies. The next stage, where the vomiting and purging are accompanied by cramps, seems to admit of two grand modes of treatment—viz., tartar-emetic, and acetate of lead with opium; together with various external remedies, to relieve particular symptoms. In 1832, I only became acquainted with Mr. Hott's (of Manchester) treatment by tartar-emetic, when the disease was subsiding; but all the cases I treated with it certainly recovered. In the Lancet for the 16th of September, 1848, there is a valuable communication from my friend Dr. C. Radclyffe Hall on this subject, well worth perusing; and I can add my testimony to the success which attended that mode of treatment.

Lancet, Oct. 14, 1848, *p.* 418.

Dr. C. Cowan, Physician to the Berkshire Hospital:—

[States that Lieutenant-General Welsh, of the Madras army, has communicated the following mode of treatment, which he (the general) has found extremely useful.]

Treatment.—If the patient is young or middle-aged, vigorous and sanguineous, and no medical aid at hand, a vein should be opened, and twenty or thirty ounces of blood taken, to insure which, the blood in most cases becoming dark and stagnant, it is necessary after the incision, to rub the arm, and put the feet in hot water, (if a hot bath cannot be procured,) as well as to administer and continue warm anti-spasmodic draughts, with warm frictions, and applying hot substances to the body and extremities, of which a very simple and efficacious one is sand, heated in a pan over a fire, and put into small linen bags or old stockings, and kept in contact with the hands and feet, stomach and spine; no quantity of liquid to be given, and nothing cold, particularly water, for which the patient usually has an incessant craving. Warm gruel is, perhaps, the best vehicle for everything.

Various stimulating medicines have been tried by different people, with pretty nearly the same effect; and I have at times, when travelling, and nothing else was at hand, given essence of ginger, brandy, laudanum, peppermint, &c., but where all the articles could be procured, I would recommend, (always and only in the absence of medical aid,) in addition to an immediate warm bath, half an ounce of the following mixture, more or less frequently, in a little warm gruel:—Opium, dr. j.; camphor, dr. j.; ginger, dr. j.; cardamoms, dr. j.; capsicums, dr. iss.; arrack or brandy, oz. viij. M. To be infused for seven days.

If this be not prepared, half a glass of brandy, with forty or sixty drops of laudanum, and twenty or thirty drops of essence of peppermint, may be substituted; or twenty grains of camphor, or from a tea to a dessert-spoonful of essence of ginger, either dose to be repeated every half hour or oftener, if not retained on the stomach,

till a favourable change becomes visible. Warm enemas have proved beneficial, especially when the retching continued and the draughts were returned, and in one instance succeeded, when all hopes by other means were at an end. Calomel in large doses was used by the faculty in India, and successfully I believe; but I never had an opportunity of trying it, because there was not any to be purchased during the first two or three years of the pestilence.

Signs of Cure.—The first indications of amendment, where the blood has been originally congealed, are—its becoming limpid, and flowing freely, a return of the pulse, of warmth in the body, of softness and pliability in the skin, and falling into an easy slumber; but the most certain prognostic of a cure is the free passage of urine. A sleep of some hours succeeds, and the patient generally awakens to convalescence; I say generally, for in the course of my experience some few apparently relieved fell into a quiet slumber, from which they only awoke to breath their last sigh, or expired without awaking at all.

After Treatment.—As soon as the first attack has been got over, a large dose of castor oil should be given, or a strong bolus of calomel and opium, and after its operation, if no fever should intervene, the patient should be warmly clad, and nourished with cordials and plain wholesome food, in small quantities, but particularly avoid all fruit, vegetables, or cold draughts, for some considerable time, as every relapse is attended with the utmost danger.

In conclusion, our author remarks, "as nothing is so conducive to illness, particularly the one in question, as terror or alarm, I would earnestly recommend to all my fellow creatures to place a cheerful reliance on the all-sufficient protection of a long suffering and ever gracious Redeemer, and to be prepared, by a life of faith and consequent usefulness, for whatever may befal them."

Provincial Medical and Surgical Journal, Nov. 1, 1848, *p.* 596.

DR. CLUTTERBUCK:—

[At a meeting of the London Medical Society, Dr. C. stated that in the cases of cholera which have occurred recently in the Peckham Lunatic Asylum, the administration of chloroform (by inhalation) was productive of the greatest benefit, speedily relieving the spasms and pain. MR. GARRETT coincided with him in opinion, and stated that the cases at Peckham were decidedly of the malignant kind. Mr. G. said:]

Brandy and capsicum were first administered, the patient being in bed. Chloroform was then resorted to: this agent he considered to be beneficial by producing reaction. By forced respirations the pulse rose, and by the time the patient became fully under the influence of the chloroform, the body was warm. He believed that without the chloroform there would have been no reaction, for opium would not have developed its effects under two hours. The cases were undoubtedly those of spasmodic cholera.

Medical Gazette, Nov. 3, 1848, *p.* 767.

Dr. Hill:—

[The following account of the treatment of malignant cholera by *chloroform* at the Peckham Lunatic Assylum, is given by Dr. J. Hill, the resident surgeon. The inhalation of chloroform was suggested by Mr. F. Ferguson, assistant surgeon to the asylum and was employed in ten cases of malignant cholera with perfect success. Dr. Hill says:]

The following is our usual mode of treatment:—Place the patient in bed in warm blankets; give a glass of brandy in hot water, with sugar, and spice; apply friction to the body by means of warm flannels; and an embrocation composed of liniment. saponis comp., liniment camphoræ comp., tinct. opii, and extract. belladonnæ; apply to the whole surface of the body bags filled with heated bran; place the patient under the influence of chloroform by inhalation, and keep him gently under its effect as long as the bad symptoms recur, (which they frequently do on its effect ceasing and his regaining consciousness.) Give in the intervals small quantities of brandy-and-water, and thin arrow-root or milk for nourishment, along with milk-and-water, or soda-water with a little brandy for drink. Avoid everything else in the shape of medicine, and trust to the efforts of nature in rallying from the poison of the disease.

Of course great caution is necessary in administering the chloroform, and in not pushing it too far. In some instances the patient will sleep for twenty minutes or half an hour—in others, for several hours; and on waking will again be seized with a return of the vomiting and cramps, when the chloroform must again be resorted to, and the patient kept in a great measure under its influence till these symptoms abate. One of our cases required its use at intervals for twenty-four hours. Again, the reaction after its use may be so great as to require gentle bloodletting; which occurred in two of our cases, both being persons of full habit of body and sanguine temperament, the one a nurse, and the other a male farm servant.

Should the simple apparatus commonly used in the hospitals for administering it be not at hand, a small teaspoonful may be poured upon a towel, and will answer very well.

That which we use is of great purity, and procured chiefly from Messrs. Gifford and Linden, chemists, 104, Strand.

Lancet, Nov. 4, 1848, *p.* 514.

Mr. P. Brady, of Harrow:—

[Mr. B. gives us the following case, treated by *chloroform taken as a medicine*, and not inhaled:]

Mary Parratt, aged 60, ordinarily enjoying good health, was on Saturday, the 29th ult., attacked with slight diarrhœa, for which the usual homely remedies were used. On the following morning at six o'clock A.M. the diarrhœa became profuse; excessive vomiting supervened, accompanied by spasms in the calves of the legs, fin-

[illegible] hour. Notwithstanding the urgent nature of the symptoms, reliance was still placed on the ingestive remedy, brandy, which was tried; however, the ejections became incessant, the spasms increased in intensity, and at nine o'clock A.M. on Sunday, the 30th inst., I was called in to see the patient, who, it was affirmed, was in a "dying state." Believing, from the description given, that I should have to treat a severe malignant cholera, and having previously ascertained that a case presented to try the effect of chloroform internally, I took with me the following mixture:

℞. Chloroformi, ʒij.; olei terebinth., ℥ij.; aq. destill., ʒiij. M.

On my arrival I found the patient presenting all the symptoms of malignant Asiatic cholera in an advanced stage: the features collapsed and ghastly; extremities and tongue cold; burning sensation in the stomach and oesophagus; pulse rapid and scarcely perceptible; voice diminished to a whisper; stomach exceedingly irritable, and the ejections from the bowels presenting the characteristic rice-water appearance; and all the voluntary muscles of the body were affected by spasm, so that the patient actually writhed in agony. I immediately administered a large teaspoonful of the chloroform mixture (containing about six minims of chloroform and forty of turpentine) in a wineglass of dilute brandy, and applied sinapisms to the calves of the legs and abdominal and thoracic surface. Thirst was relieved by drinking plentifully of water, nearly cold. Notwithstanding the irritable state of the stomach, I had the satisfaction to find that the chloroform draught was retained, as well as the fluid drunk after it, and was followed by no ejection. I now (half an hour after the draught) gave two of the following pills:—

℞. Calomelanos, ℈ss.; fellis bov. inspis., ʒj. M. et divide in pilulas quatuor.

In an hour after the administration of the chloroform, vomiting ensued of a portion of the fluid drunk, slightly tinged with the gall; this soon subsided, the diarrhœa had apparently ceased, and the cramp of stomach in frequency and severity. I now administered a second dose of the chloroform mixture, and soon after repeated the pills. The stomach retained both; she soon felt decided relief; the pulse rose in power and became slower, the spasms less frequent, and in an hour after the second dose she was bathed from head to foot in a warm perspiration, and expressed herself comparatively free from all uneasy sensations. The attack had been completely subdued, leaving behind a good deal of pyrexia and debility, from which she is now rapidly recovering.

Medical Times, Aug. 12, 1848, *p.* 237.

Mr. G. Plimmer:—

[Mr. P. relates another case of cholera in which chloroform was given as a medicine. He says:]

I determined on giving chloroform, after giving hydr. chlorid. with opium, which was immediately rejected. I gave the following

mixture: — Chloroform, ♏vj.; brandy, ʒiij.; water, ℥ijss. I gave a third part, which was thrown up in half an hour; I gave him a second dose, which was retained: the vomiting and diarrhœa ceased; the spasm less severe. I gave him, in two hours, the remaining part, and during the next six hours I administered, in two doses, six minims more of the chloroform with the most decided benefit; and he is now, the 17th inst., convalescent. To the extreme tenderness over the region of the epigastrium I applied flannel soaked in rectified spirits of turpentine. I observed there was no urine secreted, and I am firmly of opinion that the usual remedies would not have met this case. I candidly confess I had no hope of success, from its severity, and, but for Mr. Brady's case, I believe I should have lost my patient.

Medical Times, Sep. 16, 1848, *p.* 321.

J. B. Steadman, Esq.:—

[A woman, 55 years of age was attacked by English cholera, and treated by Mr. Stedman in the usual manner. He tells us:]

About three o'clock on the following morning I was hastily aroused by her husband, as the patient had become much worse. All her symptoms had increased to an alarming degree; the spasm was universal and excessively violent, "as if knots were being tied in her bowels;" vomiting incessant; countenance livid and cold; articulation feeble, praying to be released from her sufferings. As all the medicines had been rejected, I thought it fruitless to continue them, but at once decided upon administering chloroform. A mixture composed of the following was prescribed:—

℞. Chloroform, gtt. xiv.; aquæ vitæ (cogn.), ℥j.; aquæ destill., ad ℥vj. M.

A fourth part was given immediately, which had a partial but most satisfactory effect: an abatement of all her symptoms was the immediate consequence. In two hours a disposition to a recurrence manifested itself, when a second dose of the mixture was administered, which entirely controlled all spasms, vomiting, and purging. She expressed herself "very comfortable," and fell into a quiet sleep. At nine o'clock I again saw her, and found her suffering only from some febrile symptoms, accompanied with much exhaustion. She was ordered cold rice and mucilaginous drinks, and had the chalk mixture with nitric ether prescribed. A dose of ox-gall (gr. x.) was given in the course of the day, which produced three bilious evacuations and some disposition to vomiting, which soon passed away. In two days she was declared convalescent. In 1832, when the cholera visited this place, my patient was attacked, but she declares her sufferings then were nothing in comparison with her late disorder. The two remaining doses of the chloroform mixture were ordered to be carefully preserved in case she had any return of her symptoms. A daughter, grown up, who had assiduously attended upon her mother, was on Wednesday evening seized in precisely a like a manner, except that the dejections were more

abundant and frequent; and the mother, without hesitation or appeal for advice, gave her the two remaining doses of the mixture. The same magic result followed; the first dose was only partial in its effect, but the second completely subdued the disease. When I called on Thursday, the gratifying announcement was made to me of the success of my medicine in a second case.

Perhaps I am not justified in calling these decided cases of Asiatic cholera, but the disease in its latter stage, in the case of the mother, assumed a much more severe type than our English form usually bears.

Without offering any remarks upon the *fons et origo* of the malady in its worst form, and with prospective fears for its soon visiting our shores, I am but too happy (in conjunction with Mr. Brady) in being able to report so favourably of a remedy which I believe only requires to be more extensively tested to be appreciated.

Medical Times, Aug. 26, 1848, *p.* 271.

Mr. C. E. J. JENKINS:—

[Mr. J. states that in 1832, he treated cholera with *strychnine* and cold water in the following manner:]

Pure strychnia, one grain; conserve of roses sufficient to form eighteen pills: one to be given every quarter of an hour, and washed down with copious draughts of cold water, which the patient will greedily and gratefully imbibe. The first three or four pills will be probably ejected, but the subsequent doses will be retained, and their good effect, in conjunction with the water, speedily perceived.

With regard to the *modus operandi* of these remedies, I apprehend that strychnine, being the most powerful tonic known, acts in that capacity on the prostrate nervous system; and that the cold water in the first place replaces the loss of the fluids, and in the next, by its coldness, constringes the papillæ of the mucous membrane, thus suppressing their outpourings; lastly, that, by its volume, it distends and gives tone to the otherwise empty and flaccid intestinal tube.

Lancet, Sep. 2, 1848, *p.* 263.

Mr. J. R. HANCORN:—

[Mr. H. states that the plan which he here recommends, was found successful in a great number of cases, in 1831-2: it is therefore deserving of our consideration. He begins by relating the treatment for the diarrhœa, which sometimes ushered in the attack of cholera; observing that]

If the attack begin with a feeling of nausea, a very gentle emetic may preface the other remedies, as pulv. ipecac. ℈ij.; but, if there be merely uneasiness and relaxation of the bowels, then the following

℞. Extr. opii, gr. ij.; hyd. chlorid. gr. iv.; in pill, to be followed in two hours by castor oil, ¾ oz.

About two hours after this, give two table-spoonfuls of the following mixture every two, three, or four hours, according to the urgency of the symptoms:—

℞. Ammon. sesquicarb. ℈j.; sodæ sesquicarb. ʒj.; conf. aromat. ʒj.; tinct. capsici, ♏xxx.; liq. opii sedat. ♏xxx.; misturæ camph. ad ℥vj. misce.

℞. Hyd. c. cret. gr. iij.; pulv. capsici, gr. iij.; in powder, to be taken every four hours, as well during the collapse stage as that of simple diarrhœa, always taking care that the mercurial preparation be not carried too far; it being of the utmost importance to keep up the secretion of the liver, the proper action of which will be found to be the great security against the after consequences, viz., typhus fever.

Should the Asiatic cholera supervene, I would strongly urge my professional brethren to try the styptic remedy which I found so remarkably successful in 1832, viz., *tinctura ferri sesquichloridi.* This was my sheet-anchor, and I gave it in as concentrated a form as possible immediately after each ejection.

Whatever may be the nature, cause, or original seat of disease in Asiatic cholera, the effect produced appears to be an atony of the secretory and excretory ducts and mucous follicles. It therefore follows as a natural indication to restore power and tone to these vessels as speedily as possible, and this is best effected by the administration of styptics. When I used the tinct. sesquichlor. in 1831-2, its immediate effect in reducing the quantity of fluid ejected was truly astonishing, and it gradually diminished after each dose, until it ceased altogether, and the cure was effected. It should be remarked, that, after this medicine, the evacuations, instead of being like rice-water, are black. This should be explained, otherwise the bystanders become much alarmed, and fancy that mortification has ensued.

As a local application for the relief of cramp, I found the following liniment far preferable to mustard poultices, not only from its stimulating properties, but because the requisite friction in using it is of itself an efficacious remedy:—

℞. Acid. sulph. fort. ʒiss.; ol. olivæ, ℥iss. M. ft. liniment.; the only objection to its use being its destructive action on the linen, which is of little moment, considering the direful nature of the malady.

The hot-air bath should be had recourse to. This is easily effected by means of a small spirit-lamp and apparatus on the principle of Sir H. Davy's safety-lamp, which is merely placed under the bed-clothes, when any degree of heat may be induced.

I cannot too strongly urge the avoidance of brandy or large doses of opium: they both enervate the system, prostrate the vital energies, and though the extreme coldness of the surface of the body, the coldness of the tongue—nay, the coldness of the breath itself—would seem to indicate the former, yet it is not so, for the patient complains of the most agonising thirst, and intense heat in the epigastric region, which is best allayed by the free use of iced soda-water, iced champagne, and even small pieces of ice retained in the mouth, and occasionally swallowed.

Medical Gazette, Sept. 15, 1848, *p.* 452.

Dr. Leonard Stewart:—

[At a Meeting of the London Medical Society, Dr. S. said:]

He had seen one plan of treatment successful, which was suggested to him by a friend who had been long in the East Indies; he tried it in one decided case. Six grains of tartarized antimony were dissolved in warm water, and half given, and repeated in half an hour: the first dose increased the symptoms, the second threw the patient into a violent heat and perspiration, and in ten minutes he was a changed man, and got quite well without any further treatment. This was the only case he had treated on this plan, but his friend had used it frequently. As to opium, and other plans of treatment, he had no faith in them.

Mr. Hird had seen much of cholera on a former occasion, in the north of England and in Dublin, and it appeared to him to be contagious under certain circumstances; he had seen cold water tried very largely, and in these cases the disease did not seem to be followed by the consecutive fever which killed so many of the patients treated by calomel and opium. He should be inclined to try mustard emetics, repeated every hour or half hour, as they did not depress the system like tartarized antimony. He should also apply mustard poultices, hot bottles, and frictions of warm turpentine in the later stages, to check the enormous secretion from the bowels. He should give two grains of acetate of lead, and half a grain of opium, every hour or two, for a few times. He never saw calomel do any good. A friend of his had recommended carbon in these cases; and it was a fact that the cholera did not visit many of the places where there were springs containing carbonic acid gas. He had certainly seen great relief from effervescing draughts containing carbonic acid gas.

Medical Gazette, Oct. 20, 1848, *p.* 682.

Dr. Willemin, of Cairo:—

[Dr. W. recommends the use of the resinous extract of Indian hemp in the treatment of cholera.]

Medical Times, Oct. 28, 1848, *p.* 48.

Mr. F. Ward:—

[Recommends the following contrivance for hot-air baths.]

I obtained a planed deal board, two feet long, one foot wide, one inch thick; this I had cut into a semicircle, and perforated in the centre by a hole one inch in diameter, to receive a curved tin tube, two feet long; this formed the base or end; to the curve of this board I had stout wicker rods, three feet six inches long, at intervals of two inches, made secure by being inserted into the wood, and worked across, at one foot distance, with wicker or basket work, and at their ends to form a semicircle the same size as the board. The tin tube is circular, curved in the shape of a horn, the small end one inch in diameter, and made to fit air-tight in the hole of the board; the large end three inches in diameter. A small spirit lamp completes the apparatus.

Mr. C. M. Thompson:—

[Recommends the following apparatus.]

It consists of a slight frame, similar to a fracture cradle, about six feet in length, two feet and a half broad, and one foot high. This frame, for the convenience of carriage, is divided into two parts, which slide into each other in telescope fashion. The foot of the frame is solid, with an aperture in the centre, to admit the nozzle of a tin case, which holds a small tin spirit-lamp, with two wicks.

The mode of applying it is to place the frame directly over the body-linen of the patient; several blankets are then put over the frame, and well tucked in, covering every part of the body except the head. The lamp is then adjusted, and the hot air rushes into the cavity. In ten or fifteen minutes reaction is usually established. The lamp is then removed, and the frame withdrawn, leaving the patient enveloped in the blankets in a profuse sweat. The vomiting and cramps generally subside at the same time. During the whole process the patient should drink plentifully of hot mint tea.

Dr. Wood, of Peckham.—

Says, "I have been in the habit of recommending a cheap and easy mode of applying the vapour bath, for many years, by placing a hot brick in a tub of water, the patient being enveloped in a flannel gown or blankets round it, of course the head external. I have found this convenient, expeditious, and of great comfort to both rich and poor. At the same time I beg to observe, that I think medical men lose sight, in many cases of debilitated patients, of the great advantage of the vapour bath over the hot bath, the latter sometimes losing its beneficial effects by the patient being exposed to its influence too long."

Mr. H. Hulme, of Liverpool:—

Sends us a drawing of an apparatus, which, he says, "can be made by any tinman, at a very small cost."

1. It consists of an iron cup for spirits of wine, two inches and a half wide.
2. A furnace made of sheet-iron, with chimney.
3. Rings to support the chimney in the centre of guard, which must be fastened by rivets to the guard.
4. Guard for chimney, to keep the bed-clothes from being burnt, two feet long by eighteen inches in diameter.

This apparatus is to be placed on a stool at the foot of the bed, and the guard introduced under the bed-clothes, which are to be propped up by pieces of stick, so as to admit the hot air equally over the whole surface of the patient.

DR. R. CHAMBERS:—

Dr. R. C. suggests a spirit-lamp encased in a double cylinder of wire gauze, and enclosed in a light wooden framework. I had it (says our correspondent) almost in daily use during a period of five years that I was physician to the Essex and Colchester Hospital, and I feel myself justified in stating, that for efficiency, portability, and facility of application, it has no equal. Indeed, I deem it to be an indispensable appendage to the armamentarium of every hospital and surgery.

About one ounce and a half of rectified spirit will keep it in action for an hour. When desirable, the vapour of camphor may be conjoined with it, by placing about two drachms of camphor upon the top of the gauze-cylinder, the heat of which volatizes it.

For application it only requires to be trimmed as an ordinary spirit lamp, and when ignited, to be placed between the patient's lower extremities, an extra blanket being placed upon the ordinary bed-clothes. From fifteen to thirty minutes will be sufficient for a single application, and so powerful is it, that I have known the perspiration to drop through the bed.

I regret to say that I do not know to whom the merit of the invention is due. It is manufactured by Mr. Wallis, an ironmonger at Colchester, who received the pattern many years ago from an old gentleman, who used it for chronic rheumatic gout. In a communication which I had from Dr. Golding Bird on the subject some time ago, that intelligent physician informed me that he remembered to have seen something similar exhibited many years back at the Medical Society of London.

Lancet, Oct. 7, 1848, *p.* 402.

172.—ON SOME IMPROVEMENTS IN THE VOLTAIC BATTERY.

By Dr. T. WRIGHT.

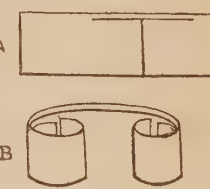
[Having established the principle of *the inactivity of zinc in a mixture of concentrated nitric and sulphuric acids*, Dr. Wright proceeds to show how it may be applied in the construction of batteries for medical and other purposes. He tells us:—]

2. The battery essentially consists of a positive plate of zinc associated with a negative plate of the same metal covered with platinum, the former immersed in a solution of some neutral salt or caustic alkali, the latter in a mixture of nitric and sulphuric acids. The intermixture of the two liquids is prevented by the intervention of a porous cell, which may be formed of garden pot-clay, pipe-clay, or plaster of Paris. The cheapest and most convenient form of the apparatus is constructed in the following manner:—Take a common jelly jar two and a half inches in diameter, and line it with a strip of the thinnest sheet zinc two inches wide, from the edge of which a narrow strip or ear is cut, turned

over the edge of the jar, and twisted to a copper wire (No. 20); within the zinc place a small porous earthenware garden-pot rendered water-tight by a plug of sealing wax, and within this again place a roll of platinized zinc, to which a similar wire has been twisted. The battery is now complete; on charging it, pour a saturated solution of common salt or muriate of ammonia in the space without the porous cell and within it, and in contact with the platinized zinc the nitro-sulphuric acid.

3. The nitro-sulphuric acid consists of *nitric acid one part and sulphuric five parts.* In such a mixture the zinc, one of the most oxidizable metals, is as inactive as a plate of glass or porcelain; but a very slight deviation from the above proportion by the addition of nitric acid or water dissolves the charm, the metal is acted on, and the platinum is thrown off its surface, for which reason it is advisable to let the nitro-sulphuric acid have an elevation within the porous cell, higher than that of the saline solution without it.

4. I have now described the mode of constructing a single cell of the battery, which is well adapted for use in conjunction with the electro-magnetic coil machine; but when the instrument is to be applied to the decomposition of saline or other fluids, it is proper to use from four to six cells in series, the zinc roll of one cell being in connexion with the platinized zinc of the cell next to it. In constructing a compound battery of this kind, the alternate cylinders of zinc and platinized zinc are cut from the same slip of metal by a T-shaped incision, and bent into rolls as in the figure, in which A indicates the zinc cut, and B the same slip bent into the proper form, the same cylinder being afterwards plantinized nearly up to the top: the zinc and platinized cylinders at each extremity of the series are of course unconnected, and have wires twisted to them to serve as poles or conductors. I think it will be at once understood that screws or joinings are unnecessary in this battery, however extended the number of pairs in series may be.



5. The zinc is easily platinized, after having been cut and moulded into the requisite shape, by dipping it for a few seconds in a solution consisting of saturated solution of chloride of platinum, ʒ ss.; sulphuric acid, ʒ jss; water, ʒ ij; it is then washed and quickly dried, and is found to have assumed a smoky tinge from the minutely divided platinum adhering to its surface.

6. For the administration of the galvanic shock and current, I use a small battery constructed in the following manner:—A plate of thin sheet zinc three inches by four is platinized to half its width, and cut into twelve slips, which are bent into the form of the letter U, the dark leg of which represents the platinized leg of the bent slip. Twelve of the glasses used in pewter ink-stands are then filled with

moistened table-salt, and a tobacco-pipe bowl, rendered water-tight by sealing wax, is thrust into each of them, and instantly filled with the acid mixture (3,) before the saline solution has time to percolate through it; the glasses are then ranged in a double line, and the zinc arcs placed in them, each having its platinized leg in the acid mixture, its unplatinized leg in the salt of the glass next in series; fine iron wires twisted round the slips at each extremity are conducted into basins of salt and water, from which the shock may be taken by immersing the hands therein. This small arrangement affords a stronger shock than a Cruikshank battery of fifty pairs of plates, accompanied with a strong sensation of heat in immersing and removing the hands from the basin.

7. Several forms of the platinized zinc battery were brought by me before the Medico-Chirurgical Society of Edinburgh, the apparatus used being a single cell (2,) in conjunction with an electro-magnetic coil machine; a compound battery of four cells (4), the poles of which terminated in platinum plates immersed in dilute sulphuric acid, and the small compound battery (6). The sparks from the first of these arrangements were most brilliant, the second decomposed the water of the dilute acid with great rapidity, and the shock from the third was perfectly satisfactory to several of the members who experienced it, even after the battery had been charged more than three hours.

8. In an economical point of view, this battery is much superior to any other; its intensity is four times greater than that of Smee's battery, the arrangement now in common use, at about a fiftieth part of the cost, as it can be put together by any one having a little sheet zinc and a pair of scissors. The saturated solution of platinum is about 2s. per oz., a sixteenth part of which quantity is sufficient to platinize more than a dozen cylinders.

9. The cells should always be well washed after use, during which process a great part of the platinum is removed; it will therefore be advisable to dip the cylinders in the platinum solution before again using them.

Monthly Journal, Aug. 1848, *p.* 131.

173.—ON CERTAIN SANATIVE EFFECTS OF GALVANISM.

By T. S. Wells, Esq., Surgeon, R.N.

[Mr. Wells describes certain applications of galvanism which he saw in the practice of Dr. Cogevina, at the Civil Hospital of Corfu. He says,]

The apparatus employed is very simple. It consists of an oval plate of zinc, from two to four inches in diameter, according to circumstances, to the back of which a flexible wire of pure silver is soldered; and at the other extremity of this wire, a plate of pure silver of the same size as the zinc, is also soldered. The length of the wire is unimportant, varying according to the distance at which the two plates are applied from each other.

[With this apparatus, galvanism was employed in the treatment of ulcers, fistulæ, fungous growths, and certain nervous disorders; and instead of moxa in the formation of issues. The general rules laid down for the employment of galvanism in this form, are the following:—]

1. To secure the effects of the apparatus, it is necessary that the surfaces of the two metallic plates be perfectly smooth and clean, and that each be closely applied upon a part of the body denuded of cuticle. Thus, when the effect upon one open surface is required, a small puncture must be made at some other part of the body to form the second.

2. Experience has proved that one of these surfaces must be superior, the other inferior, and that the plate of zinc must always be *above* that of silver.

3. When the plate of zinc is placed upon a slight excoriation, and that of silver upon a suppurating surface, the excoriation beneath the zinc plate is in two days converted into a superficial eschar an inch in circumference. In six days, the apparatus being still constantly applied, the eschar extends to the subcutaneous cellular tissue, and presents all the characters of a slough produced by caustic potass, except that the dead tissues are a little less compact. Cicatrization of the ulcers left after the separation of these sloughs being very tardy, it is necessary in most of the therapeutic applications of the apparatus, to change the situation of the zinc plate every second day, and with this precaution no inconvenience results from the superficial sores.

4. When an ulcer presents an indolent or lardaceous base, this unhealthy base is destroyed, and the surface becomes a healthy granulating one after three days' application upon it of the *zinc* plate. In this case the natural or artificial abrasion upon which the silver plate is applied must be inferior to that upon which the zinc is applied, or the good effects do not follow.

5. The zinc plate applied in the same manner upon flabby exuberant granulations or fungous growths, rapidly destroys them.

6. When the silver plate is applied to a surface simply denuded of skin, the zinc being placed superiorly upon another such surface, even although the former be freely suppurating, it is very rapidly dried, and covered with a dense pellicle.

7. When the two plates are similarly applied, the surface beneath the silver being a deep ulcer, rapid and healthy granulation follows. If the silver plate be left upon the granulating surface after this has reached the level of the surrounding integuments, the granulations become exuberant and flabby, sometimes fungous. In practice, therefore, the apparatus should be removed as the granulations reach the surface, and when this is done, spontaneous cicatrization follows.

8. When the silver plate is applied upon the superior portion of a very large ulcer, this portion only improves in appearance, while the inferior portion degenerates; but, if the plate be applied

upon the lower portion only, the whole surface of the ulcer improves equally.

9. In cases where several ulcers exist upon a limb, and the zinc is applied to a superior, and the silver to an inferior one, or to denuded surfaces, all the ulcers situated in a direct line between the two plates improve in appearance, and become healthy sores, and cicatrize, while those on either side of the current remain unaltered, and sometimes degenerate.

10. When the silver plate is applied upon the extremity of a fistulous sore, but little effect is produced; while, if a projecting portion of the silver be carried to the bottom of the fistula, granulation rapidly follows. To fulfil this object, Dr. Cogevina has silver plates perforated by screws of the same metal, the points of which are adapted to the shape of the fistula, and readily projected more or less by a simple turn of the screw. The application in these cases need not be more than a few days; for as soon as healthy granulation commences, the apparatus may be removed, and cicatrization rapidly succeeds.

11. In several cases normal innervation has been restored in paralysed parts under the use of this apparatus, the zinc being placed superiorly, and the silver inferiorly, so as to include, as nearly as possible, the whole of the paralysed part. Disordered function of particular nerves has been also remedied by so placing the two plates that the nerve lies between them.

12. The action of the zinc plate is an excellent substitute for the common moxa, and for the caustic potass when obliteration of a vein is denied. In some cases of varicose ulcer, while the silver plate has been used to hasten cicatrization, an eschar has been purposely formed by the zinc over the dilated vein above, in order to obtain a radical cure; and these objects have been readily effected.

In conclusion, I would observe that I think further experiments with this apparatus are required; and, as opportunity offers, I intend to institute a series of observations to determine, whether a second denuded surface be absolutely required—how the results would differ if one of the plates were applied to the cuticle moistened with water or acid, and how alteration in the relative position of the plates would affect the results of their application. Dr. Cogevina's cases convince me that the inferences I have drawn from them are *generally* correct; but I still consider more experience required to establish their *universal* truth.

I will only add, that I think this by far the best general method of applying electricity in the treatment of disease. The apparatus is cheap, simple, and portable: it operates without causing pain or uneasiness to the patient, nothing more than slight itching or numbness being felt; its action is to a certain extent regular and uniform, slow, and without violence, in all respects affording a much better imitation of the natural currents of vital electricity than the batteries in common use, as the action of the latter is powerful, and only susceptible of temporary application.

Medical Gazette, May 26, 1848, *p.* 896.

174.—*New Kind of Strait-Jacket.*—Influenced by the conscientious conviction that to treat certain desperate and intractable cases of insanity by the use of mechanical restraint, and to apply it also to lunatics when they suffer from grave bodily disease, requiring the horizontal position, and as little expenditure of muscular power as possible, is most wise and most humane,—we now suggest a new means of restraint, which we have found of easy application, little irksome to the patient, and secure when applied. The object to be attained, is to prevent flexion of the fore-arms; and we attain this end by making the sleeves of a jacket or bedgown of stout leather. When this is applied the arms remain extended, but there is perfect freedom of motion at the shoulder joint, and the body itself is unembarrassed by any means of constraint whatever. The cylinders of leather forming the sleeves of the restraint dress are large and roomy, and exert no pressure whatever upon any part. It is obvious that with such a dress on, a patient may be allowed liberty to roam about, and yet be incapable of doing violence to himself or others. Although there is freedom of motion at the shoulder-joints, persons prone to suicide could not reach the head and neck, owing to the want of flexion at the elbow: violence to others is prevented at the same time, seeing that little force can be exerted with an extended fore-arm.—*Dublin Quarterly Journal.*

Medical Gazette, May 19, 1848, *p.* 841.

175.—*The New Adhesive Fluid.*—Within these few weeks an ethereal solution of gun-cotton, invented by Mr. John P. Maynard, has been introduced in the United States as a substitute for common adhesive plaster, plaster cloth, bandages, and sutures. The fluid, exposed to the atmosphere, in a few seconds becomes a solid gum, adhering to the skin with such tenacity as to render any displacement of the dressing formed by it almost impossible. It resists the action of water, hot or cold, and is unaffected by any degree of warmth—conditions most necessary where immediate union of a wound is desired. It almost instantly forms an unirritating coating or plaster, of great strength and durability. In contracting, it brings the edges of the wound very firmly together, and being impervious to air and water, enables them to unite rapidly by the first intention. It leaves hardly a perceptible scar. It affords protection to all excoriated surfaces. One manufacturer of the fluid styles it *collodion.* He represents leech bites, incised wounds, cuts, burns, excoriations, chilblains, and sore nipples, as readily cured by dressing with the fluid. The price is said to be very moderate.

Medical Gazette, May 12, 1848, *p.* 826.

176.—GUNSHOT WOUNDS.

[The following abstract of the modes of practice adopted by MM. Jobert and Baudens, opposed as they are in almost every particular, is given in the Monthly Journal, by Dr. E. Waters.]

In all gunshot wounds M. Jobert adopts a uniform and exclusive mode of practice; he deprecates all interference with the wound in every instance, even in cases of comminuted fracture. He not only condemns the extraction of splinters of whatever kind, and leaves their discharge entirely to nature, but interdicts formally all examination of the wound. He combats local inflammatory symptoms by antiphlogistic measures, and, when the tension becomes excessive, relieves it by two longitudinal incisions, from three to five inches long, and penetrating through the skin and cellular tissue, practised on each side of the orifices at a distance of about two inches; he invariably avoids dilatation of the wound itself. He justifies this treatment by the advantage obtained in preventing the access of air to the fracture, with which that obtained from the extraction of the fragments, cannot, he contends, be compared. He further maintains, that direct benefit is obtained from the presence of the fragments—from those even that are completely detached—in that they contribute to the consolidation of the fracture, and prevent the formation of false joints; and he believes that in many instances useful limbs may be thus saved which would otherwise be sacrificed. The patient, it is admitted, may occasionally suffer for a time from the presence of the necrosed portions; but that these are gradually eliminated, and the limb ultimately regains its original power. In other instances, in accordance with his views in respect to the lodgment of balls in bones, he maintains that the necrosed portions may occupy the callus, and remain for an indefinite period without giving rise to any annoyance. To support the correctness of these views, he adduces the following cases:—in one of these the patient was wounded in February, The humerus was fractured comminutively near its head; the ball passed out; no dilatation nor extraction of fragments was practised, but some portions of bone were removed during the suppuration. An enormous mass of callus is developed around the seat of fracture, and consolidation has taken place. The callus incloses portions of dead bone, and a fistulous opening on the outer surface of the arm communicates with the seat of fracture. The patient retains the use of his hand, but is unable to raise or support the weight of his arm, which he carries in a sling; he suffers but little, and his health is good. The remaining patient had the humerus fractured by a musket-ball at the upper third, during the days of June; no examination of the wound nor extraction of fragments was practised. Consolidation of the fracture is now complete, and the wound perfectly healed. The only deformity of the arm is occasioned by the exuberance of the provisional callus, which is believed to contain necrosed portions of bone. The patient continues to support his arm in a sling.

M Jobert attaches great importance to these cases, regards the results as among the finest ever obtained in surgery, and as fully justifying him in not extracting fragments of any description.

M. Baudens pursues an entirely opposite treatment. In all cases of fracture caused by gunshot wounds, his first care is to ascertain the nature of the parts by direct examination; and if the existence of splinters be established, and there be any hope of saving a useful limb, he immediately places the patient under the influence of chloroform, practises the necessary dilatation, and extracts all the fragments of bone, whether primary or secondary; his object in this being to convert, as nearly as may be, these formidable wounds into simple ones.

The first authorities, among whom Dupuytren may be cited, have always ascribed the local accidents attendant on these fractures to the presence of the splinters, which acting as foreign bodies, light up and aggravate inflammation. In several cases, M. Baudens, guided by the character of the local symptoms, the tension and discoloration of the skin, inflammation in short putting on phlegmonous appearance, assumed the presence of splinters, and confirmed his diagnosis by forthwith administering chloroform to the patient and extracting them; in such cases he then with a razor, practised long superficial incisions, not embracing the whole thickness of the skin, in order to relieve the engorgement, and applied ice to diminish the action.

It is thus shown that M. Baudens extracts all foreign substances, and that he not only removes the primitive or detached fragments, but also the secondary, or those still connected with the soft parts. Till lately no difference of opinion existed as to the propriety of this practice in the first class; but with regard to the second the case was different. Dupuytren, who advocated the immediate removal of the first, inculcated in his lectures, that in the greater number of cases the second were not to be extracted, unless when the operation could be performed without danger of hemorrhage or severe pain, and then only when the fragments had been more or less detached by suppuration; that is to say, at the termination of a variable period, eight, ten, fifteen, twenty days, a month, or even later. M. Baudens removes them at once, and his long experience in Africa gives great weight to his opinions.

Two objections only are urged by Dupuytren against the latter mode of proceeding; one is the severity of the pain attendant on the operation, and he has recorded a case where he was forced to desist from researches which he had commenced, owing to the sufferings of the patient. The anæsthetic properties of chloroform completely overrule this objection: it is only necessary to witness its employment in these cases, to acknowledge unhesitatingly its beneficial effects.

The remaining objection, that, namely, of the danger of hemorrhage, alone therefore demands consideration. This danger, as resulting from the extraction of the splinters, seems to be more apparent than real. In reference exclusively to fractures of the

extremities, it is difficult to conceive any grounds for dread in this respect, where amputation would not be directly indicated; were it required, however, to proceed to their extraction in comminuted fractures of the thigh, the depth of the parts might seriously complicate and impede the operation. On the other hand, cases exist where the presence of the fragments seems to have been the cause of hemorrhage.

Monthly Journal, Oct., 1848, *p.* 259.

177.—ON SEVERE COLD OR CONGELATION AS A REMEDY OF DISEASE.

By James Arnott, Esq., M.D., Brighton.

Many powerful physical agents which are destructive when they act in an uncontrolled manner on the human body, become remedial when they are regulated and applied under appropriate circumstances. Excessive heat may be so limited or controlled, even when it is of so high a degree as to render iron white, as to furnish an useful therapeutical means; and the opposite extreme of temperature, or a degree of cold causing congelation of the animal textures, which has hitherto been only regarded as the cause of disease, constitutes, when it is not too low, too extensive, or too much prolonged, a remedy of great importance, and of very general application.

Intense cold or congelation would probably, long ere now, have obtained a place amongst the more potent therapeutical means, but for a mistaken notion respecting its effects on the animal structure. It has always been dreaded as a cause either of violent reaction and inflammation, or, if longer continued, of the immediate gangrene or death of the part subjected to it; and the common accidents from intense frost in severe winters and high latitudes, have appeared to justify this apprehension. But although it is perfectly true that the body thus exposed to intense cold may suffer as severely as when it is exposed to intense heat, or is burned by accidental fires, yet when severe cold is regulated as has been just described, it becomes an agent of a very different character, producing neither reaction nor mortification. When limited in degree, duration, and extent, it exerts an anti-inflammatory power; it appears to depress the vascular and nervous energies permanently, and yet within the bounds of safety; and, probably, while it depresses, it considerably modifies the vital actions. When severe cold has been used to remove the sensibility of parts previously to surgical operations, the wound has appeared. in every instance, to heal more speedily than under the usual circumstances.

As it is only my wish, at present, to establish the right of congelation to be admitted amongst our principal remedies, I will not enter into details respecting the diseases in which I have had recourse to it. If the above explanation of its action be correct, it is

obviously applicable to a great number of the most formidable maladies to which the human frame is subject. As respects its anæsthetic action on the nerves, it exerts a most beneficial influence in many painful diseases, the seat of which can be reached by it, as tic, cancer, &c,; but it is probably as a preventive after wounds, burns, &c., and a prompt remedy of vascular excitement and inflammation, as inflammation of the brain, windpipe, large intestine, &c., and of various hemorrhages, that it will be chiefly valued. Cold has already a high character as a remedy of inflammation; but a continuous low temperature, such as has hitherto been employed, (or, rather, which it has been the endeavour to employ), may only repress the morbid energy, which a short application of a much greater degree of cold may altogether and at once destroy. A class of diseases in which both nerves and blood-vessels are in a morbid condition, are affections of the skin, and these were, naturally, from being so obviously under the influence of the new remedy, amongst the first in which it was used. The most obstinate cutaneous diseases, erysipelas, and other acute affections as well, have yielded to congelation so speedily as almost, with respect at least to some of them, to suggest another explanation of its modus operandi. Had the cases of prurigo so treated been dependent, like scabies, upon the presence of parasitic animals, their speedy and permanent cure would be easily explained by the sudden extinction of the life of these animals by the cold. A most distressing attack of prurigo pudendi was completely subdued by two congelations, each of about thirty seconds duration, after a prussic acid lotion, and other routine applications, had been tried in vain.

Congelation to the degree which has been specified, may be produced by the common frigorific mixture of ice and salt; though for particular purposes, one of greater power might be prepared. The easiest mode of using the frigorific is, to dip a piece of ice into salt, and then apply it closely to the part. Congelation will be thus produced in half a minute. The ice may be made of suitable form by a hot iron, and may be dipped in a mixture of salt and nitrate of ammonia. When the surface to be frozen is irregular, a little pounded ice and salt may be placed on a rag, or on a flat bit of sponge; or the mixture may be confined to the part by a deep ring or bottomless cup, made of gutta percha or bees' wax, or by means of a thin bladder, each being provided with a small tube to carry off the warmer brine as the ice dissolves, or a thin gauze bag, with a sponge to imbibe the escaping brine. I have thus frozen the whole anterior part of the thigh. The application of ice or very cold water to the skin is painful, but the severer cold of a frigorific mixture immediately benumbs the part. It has been applied to a carious tooth, there being free access to the nerve of the tooth, an inflamed and ulcerated mouth from mercurial ptyalism, and an irritable ulcer, without causing pain; but when the congelation commences, there is for a few seconds, an uneasy sensation of contraction, proportionate to its degree. Irritable ulcers have thus been soon converted into healing sores. In the case of ptyalism referred to (a patient

of the Brighton Dispensary, who had been deprived of sleep for two nights by the affection of the mouth), there was no return of pain, except in mastication, after one application of the frigorific, which was sufficiently powerful to blanch the lower lip as it flowed over it, the inflammation being thus subdued.

As the prevalent erroneous notion that congelation of the animal textures must in every instance produce either violent reaction or gangrene, will probably prove some impediment to the reception of this important therapeutic agent, it may be well to direct the attention of such as would object to it on this account, to the vast difference between intense cold acting for a long period on the extreme parts of the body where the circulation of blood is never vigorous, and cold applied for a very short period to parts surrounded by, or overlaying other parts, where the circulation is vigorous, and ready to re-animate the portion in which it has ceased. There is as great a difference between the cases as would exist between that of opium taken in unlimited quantity by a feeble child, and when taken in a suitable dose by an adult. I have now employed congelation nearly two hundred times, exclusive of experiments on animals,* for anæsthetic and remedial purposes, without its being followed, in a single instance, by any injurious effect. Even if the congelation be kept up for several minutes, there is no worse consequence than a slight congestion, with redness, of a few days' continuance.

As respects the employment of severe cold for the production of local anæsthesia, it may be remarked that, although a fatal result now and then from the use of chloroform may not be thought a sufficient objection to its use, and although the intoxication or loss of consciousness during its action may be only deemed a slight inconvenience, still the facilitating of the healing process, by the prevention of an injurious degree of inflammation, ought, I think, to entitle the application of cold to a preference in the great majority of surgical operations. The smallest operations, as issues, setons, ligatures, bleeding, will illustrate the anæsthetic action of cold.

Medical Gazette, Dec. 1, 1848.

178.—*New Preparation of Camphor with Chloroform.*—By Messrs. T. & H. Smith, Chemists, Edinburgh.—[Messrs. Smith state that by using the following formula, camphor may be exhibited in the largest doses required, in a state of perfect solution.]

The formula is as follows:—Three drachms of solid camphor are dissolved in one fluid drachm of chloroform. This is, perhaps, one of the most remarkable cases of solution the whole range of chemistry presents to us. The solution is most *rapid and complete*, and the bulk of the liquid is now increased from one to fully four fluid drachms. This solution, rubbed up with the *yelk* of one fresh egg, may be formed into an extremely elegant emulsion by the addition of water, without the slightest separation of the camphor or chloro-

* I often take a bit of ice wrapped in flannel or sponge to the Dispensary, and apply it to several cases in the course of the morning.

form; in fact, no separation of any kind takes place. If to the proportions given above as much water be added as to make a four-ounce mixture, each teaspoonful of the mixture when formed will contain about five and a half grains of camphor, and about two minims of chloroform. The capability of the formula being varied so that either the camphor or chloroform may constitute the predominating ingredient, must be quite obvious. This mixture can be administered in any ordinary vehicle, such as water, without the occurrence of any separation; indeed, the mixture is as readily and completely effected as cream with tea or coffee. We have tried the effect of several medicinal substances on the mixture. With none of them has any separation been caused.

A weak saline solution, composed of common salt, phosphate of soda, and an alkaline carbonate, mixed readily, as well as a solution of muriate of morphia and sulphate of zinc. With the volatile alkali, and acid liquids—such as a weak solution of acetic and muriatic acids—the mixture seems to become more intimate and stable. The mixture with ammonia has stood since its preparation—now fully a week—without any separation. With water alone, however, the chloroform solution of camphor separates in a few days, but they readily unite again when slightly agitated. The solution of camphor in chloroform, although insoluble in water alone, appears in this mixture to be in as complete a state of mixture as the butter in milk when newly drawn from the cow.

Monthly Journal, Nov. 1848, *p.* 308.

179.—*On a Solution of Iodine in Oil.*—By M. Marchal.—This preparation has superseded the other forms of iodine at the Val-de-Grace. M. Marchal, believing that cod-liver oil owes its virtues to the small quantity of iodine which it contains, concluded that a more effective preparation of this substance than the iodide of potassium is found to be, might be made by combining it with an organic body; in which state the drug would probably be longer retained in the economy. He selected an oily body, in the hope that the oil, by forming an emulsion with the bile, would allow of the substance being digested in the small intestines, and enable the stomach to become relieved of its presence. In this way, large doses of iodine can be administered, if requisite, without irritating the latter organ; while the iodine is eliminated by the urine much more slowly than is the case with the iodide. At the same time, its absorption is made certain by the fact of its not being detected in the fæces. The iodine is dissolved in fresh almond oil as wanted, in the proportion of one part to fifteen, and of this an emulsion is made with gum tragacanth and the milk of almonds. The minimum dose is one grain, gradually increased to six grains M. Marchal has used it extensively in the treatment of buboes and other glandular enlargements, with the best effects, in promoting and hastening their cure; M. Ricord also adds his testimony in favour of this preparation.—*Gazette des Hôpitaux*, 1848.

Monthly Journal, Aug. 1848, *p.* 183.

SYNOPSIS,

CONTAINING

A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOREGOING PAGES OF THIS VOLUME; AND SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

DISEASES AFFECTING THE SYSTEM GENERALLY.

ANASARCA.—At an early period, make four or five deep incisions, a third of an inch in length, down to the fascia, in each leg: and keep the patient in an arm-chair near the fire, with the legs naked, and resting on cloths. When all the serum has drained away, support the legs by a roller. (M. Lombard, p. 48.)

DISEASE GENERALLY.—It is found that the kidneys can depurate the blood, not only of matters generally regarded as proper to their function, but of substances usually separated by other emunctories; in fact, they remove all soluble noxious matter. When, therefore, disease is excited or aggravated by noxious or lethal effete matter in the blood, we should endeavour to procure the decomposition and elimination of this matter, by stimulating the depurating functions of the kidneys. And this may be accomplished by the exhibition of the alkalies, and their carbonates, citrates, acetates, and tartrates, which not only stimulate the kidneys, as do the vegetable diuretics, but also increase the metamorphoses of tissue going on in the capillary system. (Dr. Golding Bird, p. 74.)

FEVER, *Continued.*—When the cerebral affection in the course of continued fever is attended by a quick and feeble pulse, great restlessness, total want of sleep, subsultus, and much disturbance of the nervous system generally, Dr. Graves's plan of treatment is highly valuable. It consists in giving tartar emetic with opium, the formula being, tartar emetic, four grains; tincture of opium, half a drachm to a drachm; camphor mixture, eight ounces; half an ounce or an ounce to be given every two hours. (Mr. G. Todd, p. 16.)

Of Children.—During the first week the treatment is chiefly expectant; consisting in the use of the tepid bath at 90° or 92° every morning, and tepid sponging several times a day; light aliment; simple salines, such as the citrate of potash, with a little

ipecacuanha wine if there is troublesome cough; and a little castor oil if the bowels are confined. If there is a disposition to diarrhœa, give equal parts of Dover's powder and hydrarg. c. cretâ, once or twice a day. Ascertain every day whether there is abdominal pain and tenderness; if it exists, and is not relieved by the application of linseed meal or bran poultices, the application of a few leeches may be needed. Local depletion may also be needed, for symptoms of cerebral disturbance, if there is great heat and flushing, and noisy delirium; as also if there is much moaning, restlessness, and headache. But if the delirium occurs only at night, and is of a tranquil kind, it will suffice to apply cold to the head, and to keep the apartment cool and quiet. During the second and third weeks, nutritious food will be required, and should consist in broth and beef tea; or if there is diarrhœa, arrow-root, milk, and isinglass. Wine may even be needed: and the following form of stimulant will generally be found useful. For a child of five years old, it is four minims of dilute hydrochloric acid, eight of compound spirit of sulphuric ether, and three drachms of camphor mixture, every six hours: a small dose of Dover's powder, as a grain or a grain and a half should also be given at bedtime, to prevent diarrhœa and procure sleep. If there are severe abdominal symptoms, the acid mixture must, of course, not be given. (Dr. C. West, p. 22.)

Intermittent.—In using quinine as a remedy for the West India intermittent or remittent fever, it should be given till its specific effect on the system, termed by the author "cinchonism," and marked by the supervention of more or less deafness and ringing in the ears, is produced. The best way to saturate the system with the remedy, against the paroxysms of intermittent, is to give hourly doses of three grains, till twelve doses have been taken; or if the disease is a quotidian with short intermission, six grains hourly, until six doses have been taken. One of the most valuable applications of quinine is against relapses of intermittent fever. For this purpose, two days before the anticipated relapse, give three grains of quinine thrice daily for four days: repeat the treatment at the time of the next anticipated relapse, and so on for three or four times successively; when by thus baffling the relapse, the disease will be entirely eradicated. (Dr. D. Blair, p. 13.)

Scarlatina.—In some epidemics of malignant scarlatina, the state of the fauces is identical with what occurs in epidemic diphtherite. In these cases, begin early in the disease before ulceration commences, to give one or two grains of calomel every four hours; and apply a solution of nitrate of silver, a scruple to the ounce, twice or thrice a day, to all the affected parts. Internally give acetate of ammonia, or, in the later stages, quinine with sulphuric acid. (Dr. J. M. Coley, p. 25.)

Gout.—An attack of gout is invariably dependent upon impaired function of the liver, and is certain to be relieved by a copiou

evacuation of bile. The best way to secure this end, is to give one of the following pills every four hours: ℞. Hydr. chlorid., ext. colch. acet., ext. aloes purif., aa. gr. j.; pulv. ipecac. gr. ij. M. fit. pil. After two or three of these pills have been taken, assist their action by giving a dose or two of the compound decoction of aloes. By this time the paroxysm will have been relieved; and the pills may then be given at longer intervals for a little time longer. (Mr. A White, p. 41.)

Acute.—In acute gout, begin with a purgative, consisting of from ten to twenty grains of jalap, and from three to eight of calomel, followed by a draught consisting of infusion of rhubarb and senna, with a drachm of the sulphate of potash and a scruple of the carbonate. After that let the patient eat little or nothing for twenty-four hours, and give a diaphoretic drink with ipecacuanha wine, or acetate of ammonia; and at night give a full dose of Dover's powder. On the third day begin with colchicum, giving from twenty to sixty drops of the wine twice a day, in four or six ounces of distilled water, along with five or ten grains of nitrate of potash, two drachms of compound spirit of juniper, and half a drachm of spirit of nitric ether.

Chronic.—In chronic gout, alteratives, directed to the biliary and digestive organs, are needed: opiates may be given more freely: and more stimulating diaphoretics, such as guaiacum, may be used. Otherwise the treatment differs from that for acute gout, only in being less active. Veratrine may be advantageously used, externally in the form of pomade, made with four grains of veratrine to an ounce of lard, applied to the affected part; and internally, in doses of one-twelfth to one-eighth of a grain, dissolved in distilled water, twice or thrice a day.

Metastatic.—Metastatic gout must be treated by the application of sinapisms, blisters, hot pediluvia, and stimulant frictions, to recal the disease to the extremities. While the feet are plunged into hot water with mustard in it, if the stomach is attacked, we must give cold or iced drinks with opium; if the head is the seat of metastasis, we must apply cold lotions to it; while if the heart is affected, we should apply no means but the counter-irritation, and above all take care *not* to give hydrocyanic acid. (Dr. Robert Dick, p. 43.)

Rheumatism.—*Acute.*—The indications are to relieve pain, to promote the action of the skin, kidneys, and bowels, to use antacids, and to give large quantities of diluent fluids. For these purposes, give a grain of opium, a grain of ipecacuanha, and five grains of nitre, every two, three, or four hours; and a mixture with sulphate and carbonate of magnesia. Envelope the joints in a large quantity of cotton wool, and cover with oiled silk; changing it every twelve or twenty-four hours. Give plenty of simple diluents, and from the first, let the patient have a little good beef tea frequently through the day. And when the patient

begins to pass pale urine, with or without pale lithates, he will be the better for generous diet, with wine, ammonia, or quinine, even though the articular affection persists. Too much sweating, too much purging, or too much opium, are equally unadvisable. If the patient cannot bear opium, extract of hyoscyamus, hop, or lettuce may be substituted. If the state of the joints does not yield to the application of cotton wool, apply a small sinapism for half an hour to redden the skin, then wash and dry the skin, and apply a blister the size of a crown-piece; the blistered surface may be allowed to heal, or may be dressed with stimulating ointment; or a succession of small blisters may be used. Watch the state of the heart from the first; and on the first indication of pericardial or endocardial affection, apply a large sinapism over the region of the heart, and when it comes off, a large blister: but *do not bleed* either locally or generally. Give calomel and opium to affect the gums; and, if needed, rub in mercurial ointment, or use it to dress the blistered surface. When delirium, resembling delirium-tremens, occurs as a complication of rheumatic cardiac affections, it is "a signal of distress," and must be responded to by an immediate alteration in the treatment. All too free evacuations, whether from the skin or bowels, must be checked; nourishment must be given frequently in small quantities; and even wine, brandy, or porter, may be administered. If the patient is wakeful, give opium. And take care that all exertion is avoided, lest fatal syncope be induced. If, however, there is coma, do not give opium, but apply sinapisms or blisters. (Dr. R. B. Todd, p. 30.)

Chronic Gonorrhœal.—Introduce a bougie into the urethra, twice or thrice a week, in addition to the usual treatment. (Mr. G. Corfe, p. 116.)

Scrofula.—In addition to the usual hygienic treatment, give small doses of the *purest sulphur*, which has the effect of accelerating the capillary circulation, and restoring the defective animal heat. The following formula may be used:—℞. Sulphur. purif. gr. v. ad x.; syrup simp. ʒ i.; aquæ ʒ vij.; bene terendo ft. haust. To be taken once or twice a day in a tumblerful of new milk. A slight chalybeate may sometimes be advantageously added. (Mr. F. A. Bulley, p. 181.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Apoplexy.—When what are called "threatenings of apoplexy" occur, corresponding to what Dr. Hall terms "paroxysmal apoplexy"—in the actual attack, bleed instantly, and give an effectual emetic, enema, and purgative. Afterwards let the diet be more carefully regulated, any discoverable source of irritation removed, business entirely suspended, and all emotion avoided. "The remedy of remedies is—travelling." (Dr. M. Hall, p. 107.)

When apoplectic symptoms arise from disorder of the liver, give a full purgative, consisting of ten grains of calomel and the same quantity of extract of colocynth; and repeat the colocynth in smaller doses, followed by a cathartic draught, three or four times a week. (Mr. Corfe, p. 108.)

Delirium Tremens.—Let chloroform be inhaled. (Mr. S. L. Gill, p. 115.)

Hydrophobia.—The patient dies from repeated excitation of reflex action, wearing out as it were the power of the spinal centres; and from asphyxia, induced by repeated paroxysmal closure of the larynx. Tracheotomy is therefore to be performed, in order to prevent asphyxia; and the patient is then to be placed on a spring bed, and surrounded by ranges of curtains of lace or net, and every current of air, every shake of the bed or the floor, in a word, every excitation, or cause of reflex action or emotion, absolutely avoided. (Dr. M. Hall, p. 110.)

Let repose be procured by inhalation of chloroform, once or twice a day; and apply counter-irritation to the head and spine, and give active purgatives. (Mr. R. Y. Ackerley, p. 111.)

Neuralgia.—Use active and prolonged bodily exercise. (p. 118.)

Paralysis.—*Cerebral.*—It is important to notice the state of the muscles of a paralysed limb; for if rigidity of the muscles exists at an early period, local depletion and counter-irritation will be attended with benefit, whereas such measures are not applicable when complete relaxation exists. (Dr. R. B. Todd, p. 88.)

From Lead.—Prevent the further introduction of the poison by cleanliness and frequent washings; stimulate the skin by friction and exercise; give baths containing sulphuret of potassium, in the proportion of one, two, or three ounces, to as many gallons of water; let the patient have good food, and breathe pure air; and apply galvanism as a local stimulant, for ten or fifteen minutes at a time, three times a day. (Dr. R. B. Todd, p. 96.)

Of the Portio Dura.—If arising from otitis, antiphlogistic treatment is needed, and sometimes even salivation will be beneficial. But if arising from cold, or constitutional causes, much treatment will not be required, beyond the application of warm fomentations, and the exhibition of mild purgatives, or diaphoretics, alkalies, or iodide of potassium; leeches and blisters are not so useful, and strychnine should not be given at all. (Dr. R. B. Todd, p. 92.)

Sciatica.—In obstinate chronic sciatica, introduce a bougie into the urethra, twice or thrice a week. (Mr. G. Corfe, p. 116.)

Tetanus.—Though opium does not fulfil the indication of diminishing the excitability of the spinal cord, yet in the present state of our knowledge, we are not justified in discarding it. Our principal object, in the treatment of tetanus, should be to support the pa-

tient's strength. Operations in traumatic cases are not only unnecessary but injurious. (Mr. S. G. Wilmot, p. 113.)

Traumatic.— Let chloroform be inhaled, give calomel purgatives, and use counter-irritation. (Mr. R. L. Baker, p. 113.)

Let ether be inhaled; and give morphia or opium, and croton oil purgatives. (Mr. J. G. Lansdown, p. 114.)

Toothache.—Having dissolved some gum copal in chloroform, clean out the hole, moisten a little cotton with the solution, and introduce it into the decayed part. (Mr. J. Beatson, p. 119.)

If there is free access to the nerve of the carious tooth, apply a bit of ice, or a little frigorific mixture. (Dr. J. Arnott, p. 536.)

AFFECTIONS OF THE ALIMENTARY CANAL.

Anus.—*Fissure of.*—Depends on spasm of the sphincter, and is to be treated by introducing one finger after another into the rectum, until the whole hand is introduced, and drawing the closed fist back through the anus. (M. Maisonneuve, p. 238.)

Aphtha.—After every time of feeding, take care to remove from the mouth all remains of the food, by wiping it carefully with a piece of soft rag dipped in warm water. In very mild cases, this will be sufficient to effect a cure, especially if a solution of borax, ℈i. or ʒss. in ℥i. of water, is applied after every time the mouth is thus cleansed. If this is not sufficient, let a solution of nitrate of silver, five grains to the ounce, be applied twice a day, in addition to the use of the borax. (Dr. C. West, p. 126.)

Constipation.—The addition of nux vomica to purgative medicines, very sensibly increases their efficiency. Thus a pill composed of a grain of Barbadoes aloes, three quarters of a grain of extract of rhubarb, and half a grain of alcoholic extract of nux vomica, (Phar. Edin.) if taken at bedtime, will produce one or two full evacuations the next morning, (Mr. C. Boult, p. 133.)

Dysentery.—Injections containing two grains of nitrate of silver in an ounce and a half of thin mucilage, and a few drops of laudanum, are very valuable, conjoined with other treatment, in the early stages of dysentery, before ulceration has taken place. (Mr. W. Garlike, p. 143)

Chronic.—Decoction of logwood, with laudanum, is the best astringent that can be given. When there are profuse discharges without pain, enemata of sulphate of alum with laudanum, produce a very good effect. (Dr. D. Donovan, p. 143.)

Diarrhœa.—The presence or absence of bile in the stools, determines a very important point in the treatment. If the evacuations are bilious, opium is not only borne, but needed; if there is a deficiency of bile, opium will be injurious.

Chronic.—In chronic diarrhœa, with whitish stools, and general relaxation of the system, strychnine is an admirable remedy, rendering the stools consistent, fæculent, and bilious. (Dr. J. F. Duncan, p. 135.)

Give one-twelfth of a grain of muriate of barytes, and one-fourth of a grain of muriate of morphia, made into a pill, thrice a day. (Dr. A. Walsh, p. 137.)

Almost all cases of chronic diarrhœa (except the diarrhœa of phthisis, or that caused by ulceration) may be cured by persesquinitrate of iron. The ordinary dose is from fifteen to thirty drops of a solution prepared according to the formula at p. 140 of this volume, thrice a day; but in some cases, we may begin with five drops, and gradually increase the quantity. (Dr. Graves, Dr. Neligan, Mr. W. Kerr, p. 137.)

Of Phthisis.—Give five grains of trisnitrate of bismuth, with a little magnesia and gum arabic, three or four times a day. (Dr. Theophilus Thompson, p. 125.)

Fistula *in Ano.*—Divide the sphincter ani completely; there is then no necessity for opening the sinus more extensively, whether it extend upwards by the side of the gut, or outwards into the gluteal region. When the hemorrhoidal vessels are abnormally enlarged, divide the sphincter by means of a ligature, instead of using the knife. (Mr. B. Cooper, p. 240.)

Recto-Vaginal.—Divide the sphincter ani, (but without laying open the fistula), and pass a probe coated with potassa fusa through the sinus, or bring the edges together with a ligature. (Mr. B. Cooper, p. 242.)

Gastrodynia.—If arising from *acidity*, of course antacids must be given, carbonate of potash first, and this failing, carbonate of magnesia. If the symptoms indicate a *sub-inflammatory congestion* of the gastric mucous membrane, give neutral salts with the infusion of senna, if the patient is young and plethoric; if, however, he is past the middle age, and of gouty or rheumatic diathesis, do not give neutral salts, but give extract of rhubarb and blue pill, with or without extract of colchicum, followed by infusion of senna and rhubarb, with tincture of cardamoms. If the disorder arises from *ingurgitation of bile*, begin with an emetic, and then give taraxacum, to which sulphate of magnesia may be added, if the stools are pale and inefficient. If the cause is *flatulence*, give a mixture containing four or six drachms of sp. ammon. co. and tinct. assafœt. with six or eight ounces of inf. sennæ co. If *interruption of the menses* or *suppressed hemorrhoids* lead to the gastric pain, leeches to the anus or groins, hot pediluvia, and moderate purging, are the proper remedies. And if the gastrodynia appears to be *simply neuralgic*, without appreciable cause, some of the various sedatives, narcotics, and tonics, mineral and vegetable, must be used, according to the temperament, age, and sex of the patient. (Dr. R. Dick, p. 131.)

Harelip.—When there is a cleft maxilla, and one of the edges of the divided alveolus projects, detach the soft parts from the bones more extensively than is usually done, and then cut through the protruding alveolus with the bone forceps, at the spot about corresponding to the space between the first and second incisors, and bend back the partially detached portion to the desired level; then finish the operation in the usual manner. This operation should be performed before dentition, and may be safely done as soon as the child is a month old. (Mr. H. H. Walton, p. 204.)

In operations on the lips, employ a large pair of Dieffenbach's forceps, on each side, to control the hemorrhage, instead of having the lips compressed by the fingers of an assistant. In bringing together the edges of the incision, use thin steel pins; and instead of thin ligatures, use strips of "endless" lint, about half an inch wide to twist about the pin. (Mr. T. Paget, p. 205.)

The best time for operating, is soon after the child is weaned. (Mr. B. Cooper, p. 206.)

Hemorrhoids.—Attend first to the functions of the liver and bowels by giving small doses of mercury, and mild purgatives, such as confec. piper. nigr., or "Ward's paste." Or give the following draugh tthrice a day; ℞. Dec. aloes co. ʒiss.; ext. sarzæ ʒss.; decoc. sarzæ co. ℥iss. M.; with an alterative pill two hours before dinner, to induce defæcation at bedtime. If there is very great irritation excited by the piles, give one of the following pills twice or thrice a day: ℞. Morph. acet. gr. 1-6th; ext. hyosc. gr. iss.; camphoræ, gr. ij.: ext. coloc. co. gr. ij. M. When surgical treatment is required, internal piles must always be removed by ligature. Pass a needle armed with a double silk, through the centre of the tumour, and tie the threads on opposite sides, taking care that they include only the mucous membrane and submucous cellular tissue; and after tying the ligatures, lay the tumour open with the knife to relieve the constriction. After the operation keep the patient recumbent, on low diet, and give opium to keep the bowels constipated till the ligature comes away. If the piles are *external*, remove them by excision; and if there are more than one, remove them all at the same sitting. During the progress of cicatrization, pass a bougie daily, to prevent contraction of the anus. (Mr. B. Cooper, p. 236.)

Internal.—Apply the *strongest* nitric acid that can be procured, to the mucous membrane covering the tumour, so as completely to destroy its vitality. Or, remove the tumours with a pair of curved scissors, having previously encircled them at the base with an instrument which will at the same time hold them in their situation, and prevent the divided vessels from bleeding. Immediately on removing the tumour, wipe the cut surface dry, and touch it with the strong nitric acid. (Mr. H. Lee, p. 232.)

HERNIA.—For inguinal hernia in children, (and in an emergency for adults) use instead of a truss, a skein of Berlin or lamb's wool: this is to encircle the pelvis, one end being passed through the other, at a point corresponding with the inguinal ring, and the free end then carried between the thighs and fastened behind to that portion which forms the cincture. (Mr. W. Coates, p. 228.)

For oblique inguinal hernia, use the "Solid-pad truss." (Mr. G. R. Dartnell, p. 227.)

Irreducible.—In order to get the hernia into a reducible form, keep the patient in bed with the shoulders and thighs raised, and ice applied frequently to the tumour. Order low diet, purgatives, and enemata; and give a grain of blue pill and a quarter of a grain of tartarized antimony twice a day, with a view of getting the fatty matter of the omentum absorbed. (Mr. B. Cooper, p. 215.)

Strangulated.—If the taxis does not succeed, and the patient objects to have the operation performed, give opium, to the extent of three or four grains. If the operation is performed, divide the stricture, if the circumstances of the case will allow, external to the sac. (Mr. B. Cooper, p. 216.)

If the taxis is carefully and patiently applied, with the aid, occasionally, of the warm bath, the operation will rarely if ever be required. (Dr. J. Toogood, p. 222.)

Strangulated Femoral.—Mr. Gay's operation is by far the simplest and the safest. (Dr. A. Catherwood, p. 226.)

Umbilical.—For exomphalos in children, apply pressure, by means of a piece of vulcanized caoutchouc, of the thickness of half-a-crown, and long enough to reach one-third round the child's body, to the ends of which are attached pieces of white linen web to complete the circle, with tapes to tie behind the back. (Mr. W. N. Spong, p. 226.)

ILEUS.—The abdominal cavity should certainly be only opened as a last resource. When an exploration is determined on, it should be performed in the linea alba except the obstruction is in the large intestine, when an artificial anus must be formed in the lumbar region. (Mr. B. Cooper, p. 225.)

INTESTINES, *Wounds of.*—When there are symptoms of wounded intestine without protrusion, the treatment consists in rest, and abstinence from food, with the use of stimulants, if indicated. When there is protrusion, if the wound is small, pinch up its edges with forceps, and tie a thin silk ligature round it: return the intestine into the abdomen, but keep it close to the external wound. If the opening into the bowel is large, close it with the uninterrupted suture, using the finest possible needle and silk; and retaining

the intestine, as before, close to the external wound. If there is complete transverse division of the intestine, the best plan is to retain both ends at the external wound, so as to form an artificial anus, and afterwards adopt means to restore the integrity of the canal. (Mr. B. Cooper, p. 212.)

Palate.—Gutta percha makes an excellent kind of artificial palate. (p. 210.)

Peritonitis, *Chronic, of Children.*—Vide "Tabes Mesenterica."

Polypus Nasi.—Remove *gelatinous* polypi either by means of the forceps, or what is better, by a snare similar to that used by Mr. W. R. Wilde for the removal of aural polypi. When polypi project back from the posterior nares, if they are small and soft, remove them by a curved pair of forceps, with the blades opening in front and behind. But when single, large, and fleshy, employ the ligature, using a silver wire, and applying it by means of the instrument figured at p. 208. (Mr. W. Colles, p. 206.)

Prolapsus Ani.—A pessary is sometimes useful, passed into the bowel *above* the sphincter muscle; but means should be used at the same time, to improve the general health. A radical cure may be attempted by pinching up several small portions of mucous membrane, at about equal distances from each other, a little above the sphincter, and tying a ligature round each. In obstinate cases, the anal extremity of the sphincter may be divided, with a view of diminishing the opening of the anus. (Mr. B. Cooper, p. 238.)

Some cases will be benefited by destroying a portion of the mucous membrane with the *strongest* nitric acid. Or remove a fold or two with curved scissors, and immediately touch the surface of the wound with the acid; care having been previously taken to compress the base of the portion removed, so as completely to prevent any of the divided vessels from bleeding. When an operation from any cause cannot be undertaken, use frequent ablution with cold water, or apply the following ointment: ℞. Pulv. hydrarg. nitr. oxyd. ʒiij.; pulv. capsici, gr. v.; ung. cetacei, ℥j. M. In many old cases, however, mechanical support is the only means that will afford relief. (Mr. H. Lee, p. 233.)

Ptyalism.—Apply frigorific mixture to the inside of the mouth. (Dr. Arnott, p. 436.)

Rectum, *Stricture of.*—When it is non-malignant, employ the recumbent posture, leeches to the anus, and enemata, or the bougie; but the latter should only be used by those who have a thorough knowledge of the parts. (Mr. B. Cooper, p. 240.)

Stomatitis, *Gangrenous, (or Cancrum Oris.)*—Apply strong nitric acid to the sloughing surface by means of a piece of sponge fixed on the end of a quill, taking care to guard the tongue and other healthy parts against the action of the acid. This should be

done *early;* and in order that it may be done effectually, examine the mouth every twelve hours, and re-apply the acid if the mortification continues to spread. If a further application of the strong acid is unnecessary, it may still be needed in a diluted form, or chloride of lime in powder may be applied once or twice a day. Syringe the mouth frequently during the whole of the treatment, with warm water or camomile tea, mixed with a small quantity of solution of chloride of lime. Internally quinine or bark must be given, in conjunction with wine and other stimulants, and nutritious diet. (Dr. C. West, p. 129.)

Ulcerative, (or Noma.)—The treatment having been commenced with a purgative if the bowels are constipated, give chlorate of potash, which almost deserves the name of a specific in this affection. The dose for a child three years old, is three grains dissolved in sweetened water, every four hours; and to a child of eight or nine, more need not be given than five grains every four hours. The diet should be light and nutritious. (Dr. C. West, p. 128.)

Tabes Mesenterica.—In the first stage, rely chiefly upon dietetic and hygienic means. In the second, relieve pain by the application of a large poultice, frequently renewed, to the abdomen, avoiding, if possible, the application of leeches. As mild mercurials continued for a long time are of service, as soon as the abdominal tenderness is sufficiently relieved to allow of it, let the belly be rubbed twice a day with a liniment consisting of equal parts of lin. hydrarg., lin. sapon., and ol. olivæ; and give hydrarg. c. creta, with an equal quantity of Dover's powder once or twice a day. The abdomen may be advantageously supported by a well-adapted flannel bandage, with a piece of whalebone at either side. If there is diarrhœa, give a mixture with logwood and catechu. If diarrhœa is slight, or is absent, and there is much feverishness, use the tepid bath, and give small doses of liquor potassæ and ipecacuanha, with extract of dandelion, and the mercurial with Dover's powder. If a mild tonic seems likely to be borne, give a mixture with extract of dandelion, extract of sarsaparilla, and carbonate of soda; or give infusion of calumba, or liquor cinchonæ. Chalybeates will not often be borne: citrate of iron, or the ferro-citrate of quinine are the best, but must be given with great caution. Change of air, however, and especially removal to the sea-side is the best tonic. The diet must, of course, be light and unstimulating throughout. (Dr. C. West, p. 148.)

Throat.—For examining the throat and for operations about the mouth, a speculum, of which a wood-cut is given in the text, is highly recommended by Dr. A. Fleming, (p. 211.)

Worms.—Santonine, prepared from the artemisia santonica, is a valuable and agreeable remedy for both lumbrici and tœnia. The dose for an adult is from five to eight grains, and for a child from two to four, given as a powder in sugar or preserve, at bed-

time, and washed down by a glass of water. A second dose on the following evening is sometimes needed. (Mr. T. S. Wells, p. 151.)

In Children.—The general treatment is, to regulate the diet, and give alteratives and ferruginous preparations, with occasionally a brisk cathartic. The special treatment for *ascarides* consists in giving a lime-water enema, with or without two drachms of muriated tincture of iron; if they have occasioned much diarrhœa and tenesmus, the lime-water injection should be given daily for two or three days together, and small doses of castor-oil mixture given every six or eight hours. For *tænia* give decoction of the bark of pomegranate root, in doses of ℥j. thrice a day, to a child seven years old, interrupting its administration twice in the week, in order to give a purge of calomel and scammony. (Dr. C. West, p. 149.)

AFFECTIONS OF THE URINARY ORGANS.

Albuminuria.—The indications of treatment are: 1st, to remove such exciting and predisposing causes as intemperance, and residence in an impure atmosphere; 2nd, to oxygenize the blood by active exercise in the open air; 3rd, to avoid fatty and other non-nitrogenous articles of food; 4th, to administer alkalies freely; and, 5th, to keep up a tolerably free action of the bowels. (Dr. J. F. Duncan, p. 165.)

Diabetes.—The azotized dietetic plan of treatment is efficacious, and the admixture of a small quantity of vegetable food does not very materially interfere with its favourable operation. (Dr. R. B. Todd, p. 168.)

Hydrocele.—Inject the following: ℞. Iodid. potasii ʒj.; aq. distil. ℥iss.; tinct. iodine, ʒiv. M. In using this solution, it is of no importance if all the fluid injected does not return. (Dr. Bellingham, p. 249.)

Urea, *Deficiency of.*—This is usually associated with diuresis, and one of the first principles to be attended to is to reduce the quantity of urine, by restraining the patient, as much as possible, from drinking. Cutaneous action must be kept up by the use of the vapour bath and friction, together with Dover's powder and antimonials. The bowels must be kept regular, but active purging avoided. The diet should consist of animal and farinaceous matters, with good porter. (Dr. Prout, p. 158.)

Excess of.—Avoid all rough treatment. Purgatives and alteratives are often necessary, but must be used with caution. Sedatives, especially opium, are usually required, and should be combined with appropriate tonics. The food should be light and nutritious, all diluent and diuretic fluids being avoided. (Dr. Prout, p. 155.)

URINE, *Retention of.*—In retention of urine from paralysis of the bladder, cerebral or otherwise, give small and repeated doses of ergot of rye, up to seventy-five grains a day; and continue its use, in decreasing doses, for eight or ten days after the cure. (Dr. Allier, p. 170.)

VARICOCELE.—A new form of truss is recommended, having some advantages over the moc-main lever. (Dr. L. R. Thompson, p. 250.)

FRACTURES, DISLOCATIONS, &c.

AMPUTATION, *Of the Fingers.*—In amputating at the phalanges, make the flap first, by transfixing on the palmar aspect with a narrow bistoury; then divide the lateral ligaments, open the joint, and divide the skin posteriorly. In operating between the first and second phalanges, transfix at the fold in the integuments; between the second and third phalanges, one line in front of the fold. In removing the whole finger, lay the point of the knife on the skin half an inch above the joint; carry it down over it, then by the side of the finger into the large fold in front, and continue it upwards on the opposite side to join the incision on the dorsum. Then put the ligaments on the stretch, open the joint, and conclude the operation. If the head of the metacarpal bone is to be removed, the operation is the same, except that the incision is to commence an inch and a half above the joint, and that the latter is not to be opened. (Mr. G. Williamson, p. 196.)

Of the Toes.—The same method is recommended as that for amputating the fingers. But the head of the metatarsal bone ought to be preserved, while that of the metacarpal bone should always be removed. (Mr. G. Williamson, p. 197.)

DISLOCATION, *of the Shoulder.*—Lay the patient on a sofa or bed, and put the heel in the axilla, in the ordinary manner; then fasten a long narrow towel or sheet above the elbow, by means of the noose figured at p. 185, and let the two ends be tied firmly behind the back of the surgeon, over the lumbar region. Powerful extension can now be made, while the hands are free to effect any requisite manipulations. (Mr. W. N. Spong, p. 186.)

Endeavour first systematically to break down adhesions by making forcible extension, and then moving and twisting the limb about in all directions. Afterwards make the special attempt at reduction; and to do so successfully, apply the extending force in a line parallel to the body. (Mr. F. C. Skey, p. 187.)

Of the Hip.—Use two or three narrow and strong pieces of sheeting. Fix the pelvis by one of these firmly tied to a bed-post; a pad made of a napkin doubled twice and then rolled up diagonally,

being employed as a pad between the thigh and pudenda. Roll another sheet into a flat rope, and having attached it to the limb above the knee, by means of the noose of which a wood-cut is given at p. 185, fix the two ends to the opposite bed-post. Then, having made all tight, place a short stout piece of stick between the two ends of the second sheet, midway between the thigh and the bed-post, and using it as a lever, twist the sheet upon itself until the requisite amount of extension is made. (Mr. W. N. Spong, p. 184.)

Fracture, *of the Thigh in Infants.*—Flex the hip and knee joints, and then apply a strip of sheet iron, (an inch wide, and thin enough to be easily bent, though sufficiently thick to bear the weight of the limb without yielding) from the lower part of the abdomen to the end of the toes, making it follow the curvature of the limb, and another similar piece behind; the limb being first evenly rolled, and the splints themselves padded. These splints having been securely fixed to the limb and to the pelvis by a bandage, will retain the limb accurately in the flexed position. (Mr. E. F. Lonsdale, p. 175.)

Ununited.—Employ subcutaneous incision of the parts, by passin a strong needle obliquely down, and moving its edge freely about in all directions, so as to cut up the ligamentous bond of union, and the dense investment of the ends of the bones; withdraw the needle, and cover the puncture with isinglass plaster. (Professor Miller, p. 171.)

Gunshot Wounds.—Do not in any case interfere with the wound at all, either for the extraction of splinters, or even for the examination of the wound. Use ordinary antiphlogistic measures, and if the tension becomes excessive, relieve it by two longitudinal incisions, each from three to five inches long, penetrating through the skin and cellular tissue, at a distance of about two inches on each side of the wounds. In comminuted fracture, a positive advantage is gained by leaving the fragments in situ, instead of attempting to extract them, for besides the advantage obtained by preventing the access of air to the fracture, the presence of the fragments, even though they should afterwards become necrosed and be cast off, contributes to the consolidation of the fracture, and prevents the formation of false joint. (M. Jobert, p. 443.)

Ascertain immediately the nature of the injury by direct examination of the parts; and when there are splinters, put the patient under the influence of chloroform, and proceed to extract all the fragments whether they are completely detached, or are adherent to the soft parts. (M. Baudens, p. 434.)

Rupture *of Tendo Achillis.*—When union does not take place, lacerate the ends of the tendon and the intervening parts, by means of subcutaneous puncture. (Professor Miller, p. 171.)

SPINE, *Curvature of the.*—When the spine becomes curved from previous curvature of the legs in weak children, support should be given by the use of leg irons, made with joints corresponding to those of the hip, knee, and ankle. Many object to the use of leg irons, but their objections are refuted both by sound theory, and by the results of practice. (Mr. J. Bishop, p. 180.)

AFFECTIONS OF THE SKIN.

ACNE.—Give a capsule containing ten minims of Stockholm tar, three times a day. (Mr. J. Wetherfield, p. 276.)

Apply collodion. (Mr. E. Wilson, p. 280.)

BEDSORES.—Endeavour to prevent bedsores, by placing oiled and partially inflated bladders under the part which suffers pressure, and by applying Brodie's lotion, which consists of two grains of bichloride of mercury to an ounce of proof spirit. If, however, a slough is formed, apply carrot poultices, on which a solution of chloride of soda is sprinkled, until the slough separates. When it has separated, dress the sore at first with stimulating balsamic applications, afterwards apply solution of nitrate of silver (ten grains to the ounce) every morning, and cover the ulcer with fine carded cotton and oiled silk. Lastly, if the granulations should be exuberant, apply every morning a concentrated solution of sulphate of copper, the dressing with carded cotton and oiled silk being continued till the sore is healed. (Dr. M. C. Bernard, p. 291.)

BURNS, *Contraction from.*—Divide the cicatrix thoroughly, and afterwards apply wetted lint or other dressing, covered by a roller applied so as to produce tolerably firm pressure, and a layer of cotton wool to maintain the temperature. Keep the patient on a milk diet during the whole process of healing. (Mr. J. Grantham, p. 292.)

Carefully divide the whole of the contractile tissue of the cicatrix, and dress the parts in an extended posture. (Mr. Whitehead, p. 293.)

ECZEMA.—Apply a lotion containing bichloride of mercury, three grains to the pint, five or six times a day. Or, apply water as warm as it can be borne. (M. Trousseau, p. 275.)

In eczema and all eruptive diseases attended with more or less exudation, ascertain the reaction of the discharge upon test paper. If it is alkaline, apply nitric acid lotion (℥ss. ad aquæ Oj.) and give small doses of the same acid, in the compound infusion of orange, internally. If the discharge has an acid reaction, adopt the reverse of the above treatment. (Mr. G. Corfe, p. 274.)

Apply the ung. picis liquid., and give tar capsules. (Mr. J. Wetherfield, p. 276.)

ERYSIPELAS.—Apply the purest kreasote over the whole of the affected surface and some distance beyond, with a camel-hair brush; give a dose of calomel, followed by one of jalap; and if the throat and fauces are inflamed, pencil them with solution of nitrate of silver, half a drachm to a drachm in the ounce of distilled water. In the phlegmonous form, repeat the application more frequently, and in the intervals a cold poultice sprinkled with water strongly impregnated with kreasote; or if the face is affected apply a cloth kept wetted with the solution. (Dr. Fahnestock, p. 280.)

Employ cold so as to produce congelation of the parts for a few seconds, by applying a piece of ice, made of a suitable form by a hot iron, and dipped into a mixture of salt and nitrate of ammonia. (Dr. J. Arnott, p. 436.)

HERPES.—Apply collodion. (Mr. E. Wilson, p. 280.)

Zoster.—The most soothing application is freshly made ungt. hydr. ammonio-chlorid., smeared on the whole crop of vesicles, twice or thrice a day. (Mr. G. Corfe, p. 274.)

ISSUES.—May be made by applying to the part, slightly excoriated or denuded of cuticle, a smooth zinc plate of proper size, having a silver wire soldered to its back; to the other end of the wire is soldered a smooth silver plate of the same diameter as the zinc, and this is closely applied to an abraded surface, *lower* down in the body than the zinc plate. In a few days an eschar will form beneath the zinc plate. (Dr. Cogevina, Mr. T. S. Wells, p. 431.)

LEPRA.—Give a capsule containing ten minims of Stockholm tar, three times a day. (Mr. J. Wetherfield, p. 276.)

LUPUS, *Non Exedens.*—Apply collodion. (Mr. E. Wilson, p. 280.)

PRURIGO, *Pudendi.* — Apply a lotion composed of two or four drachms of the terchloride of carbon, or chloric ether, in a pint of distilled or elder-flower water: and give a warm bath every evening. (Mr. G. Corfe, p. 274.)

Produce congelation of the parts for a few seconds, by applying a piece of ice made of a suitable form by a hot iron, and dipped into a mixture of salt and nitrate of ammonia. (Dr. J. Arnott p. 436.)

Senilis.—Apply ung. picis liquid. freely, every second or third day, and a roller where practicable, occasionally bathing the parts in bran water, to remove the deposit of tar. (Mr. J. Wetherfield, p. 277.)

PSORIASIS, *Palmaris.*—Give tar capsules, and immerse the hands in a bath of tar water for a quarter of an hour every night, afterwards applying starch powder.

Nasi.—Give tar capsules and anoint the cracks very gently with ung. picis liquid., every night, washing it off with warm water in the morning. (Mr. J. Wetherfield, p. 276.)

SCABIES.—Provide the patient with old linen; and order him every morning and evening to make a good lather of yellow soap in his hands, to dip them into a basin of fine sand, and assiduously to rub every part of the body on which the slightest trace of a vesicle exists; (the use of sand-soap balls is more elegant). Having done this till the skin tingles smartly, he is to wipe himself dry, and then to rub common sulphur ointment firmly into the affected parts. He is then to be rolled in the sheet, and have a pair of old gloves on his hands, and is thus left till night, when the same operation is repeated, and thus continued until the fourth day. He is now to have a warm bath, and to be lathered with plain soap and water; and the cure being effected, may have clean linen and clean sheets. (Mr. G. Corfe, p. 275.)

SCALP, *Eruptive Diseases of the.—Herpes Capitis.—Eczema Capitis.—Impetigo Capitis.—Pityriasis Capitis.*—Keep the hair closely cut, (not shaved), and in inveterate cases apply a poultice for twelve hours at the beginning of the treatment, to loosen the scabs. Apply ointment of carbonate of soda or potash, twenty or thirty grains to the ounce of lard, three times a day; and wash it off every morning with a lotion containing from half a drachm to a drachm of carbonate of potash or soda, to the pint of distilled water. In all cases begin with the weaker preparations of the carbonate of soda; the carbonate of potash is more irritant, and is chiefly applicable to cases of pityriasis, or the more chronic forms of eczema. In very old chronic cases of impetigo or eczema, apply very dilute citrine ointment at bedtime, and the alkaline lotion three or four times a day. In all cases keep the child strictly on milk diet during the whole of the treatment. And give half a grain of yellow iodide of mercury, two grains of hydr. c. cretâ, and two grains of aromatic powder, every second morning, to a child six years old; if the child is older, give it every morning,—if younger, every third or fourth morning. To children under three years, give half the quantity twice a week; and to infants at the breast, do not give the iodide, but substitute the hydrarg. c. cretâ, or what is better, the hydrarg. c. magnesiâ.

Porrigo Capitis.—Give iodide of arsenic: to an adult, from one-tenth to one-fourth of a grain; to a child six years old, one-fifteenth of a grain; and to a younger child, from one-eighteenth to one-twentieth of a grain. Cut the hair closely, and apply a linseed poultice for twelve hours, and apply the carbonate of potash lotion and ointment alternately, for two or three days, till the crusts are all separated. Then apply iodide of lead ointment, (half a drachm to the ounce) during the day, and use the alkaline lotion in the morning. After three weeks or a month suspend the treatment to see if the disease is cured. If it is not, persevere longer with the remedies. (Dr. J. M. Neligan, p. 269.)

SYCOSIS.—Give a tar capsule twice a day. (Mr. J. Wetherfield, p. 277.)

Ulcers.—Apply to the ulcer a smooth plate of silver, having soldered to its back a silver wire, to the other end of which a smooth plate of zinc of the same diameter as the silver is soldered. The plate of zinc is to be placed on an excoriated surface of skin on a part of the body *higher up than the silver plate;* and its position is to be changed every second day, or else an eschar will form under it, while the surface beneath the silver plate granulates and cicatizes. If the ulcer has an indolent and unhealthy base, the zinc plate may be applied to it for a few days to destroy this, the silver plate being still applied to an excoriated or denuded surface, lower down than the zinc plate. (Dr. Cogevina, Mr. T. S. Wells, p. 430.)

Irritable ulcers may be made to take on the healing process by applying to them a frigorific mixture of such a degree of coldness as to produce congelation of the parts. (Dr. J. Arnott, p. 436.)

Of the Leg.—Uniform and complete support to the entire limb, by a proper application of strapping, affords a more rapid, certain, and generally applicable plan of treatment, than a continuance in the recumbent posture. For a full account of the method of applying the straps, see p. 285. (Mr. G. Critchett, p. 285.)

VENEREAL DISEASES.

Gonorrhœa *in the Female.*—Let the patient first remove as much of the secretion as possible from the vagina, and then inject in an efficient manner a preparation of copaiba, (about a drachm of the soluble balsam to a pint of water), and retain it for five minutes; and then insert a piece of lint six inches square, folded into four, saturated with the copaibal solution. This process to be repeated four times a day. In those intractable cases in which the neck and cavity of the uterus are involved in the disease, apply an ointment with six or eight grains of nitrate of silver to the ounce of lard, to the internal surface of the uterus, by means of an elastic bougie. (Dr. R. G. Mayne, p. 259.)

The disease generally extends to the lining membrane of the neck or even cavity of the uterus. Apply the solid nitrate of silver to this cavity and to the sides of the vagina, and keep the latter separate by means of a plug of lint. (Dr. Egan, p. 257.)

Copaibal injections are of no use. (Dr. Egan, Dr. de Meric, p. 262.)

Orchitis, *Gonorrhœal.*—Keep the patient on low diet, and after administering a purgative dose, give a drachm of tincture of henbane, three times a day. (Mr. Gay, Mr. T. C. Jackson, p. 263.)

Give a mixture containing epsom salts, and a sufficient quantity of tartar emetic to produce decided nausea from the first; say

half a grain for the first dose, and then a fourth or a sixth of a grain every four or six hours, so as to keep up the nausea for two or three days. (Mr. B. Phillips, p. 264.)

NON-VIRULENT DISEASES.—1. *Injection for Balano-posthitis.*—Make three injections a day between the glans and prepuce with the following fluid: distilled water, three ounces; nitrate of silver, two scruples.

2. *Abortive Treatment of Blennorrhagia.*—Make one injection only with the following liquid: distilled water, one ounce; nitrate of silver, fifteen grains. And take every day, in three doses, the following powder: cubebs, one ounce; alum, thirty grains.

3. *Injection for Blennorrhagia when the period for the Abortive Treatment is passed.*—Make three injections daily with the following liquid: rose water, six ounces and a half; sulphate of zinc, and acetate of lead, of each, fifteen grains.

4. *Internal Treatment of Blennorrhagia.*—Take one table-spoonful of the following emulsion three times a day: copaiba, syrup of tolu, and syrup of poppies, of each, one ounce; peppermint water, two ounces; gum arabic, a sufficient quantity; orange flower-water, two drachms.

5. *Acute stage of Blennorrhagia.*—Twenty leeches to the perinæum; bath after the leeches; refreshing drinks; rest in bed; low diet; suspensory bandage. Take one of the following pills four times a day: expressed and inspissated juice of lettuce, (lactuca sativa,) and camphor, of each, forty-five grains; make twenty pills.

6. *Gleet.*—Make every day three injections with the following liquid: rose water, and Roussillon wine, of each, six ounces; alum and tannin, of each, ten grains.

7. *Subacute Epididymitis.*—Rub the testis twice a day with the following ointment: stronger mercurial ointment, and extract of belladonna, equal parts of each; a poultice to the part after the ointment, and rest.

8. *Acute Epididymitis.*—Fifteen leeches to the perinæum, and the same number in the groin corresponding to the affected epididymis; bath after the leeches; barley-water for common drink; low diet, rest, and poultice.

9. *Chronic Epididymitis.*—Apply Vigo's plaster to the testes, and wear a suspensory bandage. (Simple plaster, yellow wax, pitch, ammoniacum, bdellium, olibanum, mercury, turpentine, liquid styrax, and volatile oil of lavender, are the component parts of Vigo's plaster.—*(Reporter of Lectures.)*

VIRULENT DISEASES.—PRIMARY SYMPTOMS.—10. *Abortive Treatment of Chancre.*—Within the first five days of the contagion, destroy the chancre with potassa fusa cum calce, (pâte de Vienne.)

11. *Regular non-indurated Chancre.*—Frequent dressing with the aromatic wine, extreme cleanliness, occasional light cauterization with the nitrate of silver. Rest, demulcent drinks; when there is inflammation, antiphlogistics, purgatives, and emollient applications. (N.B. No mercury.)

12. *Phagedænic Chancre.*—Complete cauterization with the nitrate of silver, the liquid nitrate of mercury, the potassa cum calce, or the hot iron, according to circumstances. Afterwards lotions with aromatic wine, three ounces; extract of opium, three grains; or, aromatic wine, eight ounces; tannin, thirty grains; or, distilled water, three ounces; tartrate of iron and potash, four drachms; or, in the scrofulous diathesis, distilled water, three ounces; tincture of iodine, one drachm; or, sulphur ointments, and sulphureous baths. Internally: tartrate of iron and potash, one ounce; distilled water, eight ounces. One ounce three times a day.

13. *Indurated Chancre.*—Three dressings a day with the following ointment: calomel, one drachm; axunge, one ounce. (N.B. Mercury is used internally for the *indurated* chancre: as to the mode of administration, see secondary syphilis, No. 21, as the metal is given in the same manner in both cases.)

14. *Acute, non-Specific Adenitis, vel Inflamed Bubo.*—Twenty leeches on the tumour, emollient cataplasms, barley-water as ordinary drink, rest, broths. If fluctuation be detected, let out the purulent matter by a free incision.

15. *Abortive Treatment of the Bubo Consecutive, by absorption of the Virus, to the non-Indurated Chancre.*—Deep cauterization of ten minutes' duration, with the potassa fusa cum calce, and await the fall of the eschar. (N.B. Analogous to the early destruction of chancre.)

16. *Bubo Consecutive to the non-Indurated Chancre, which inevitably Suppurates.*—Use antiphlogistics according to circumstances, and then free the purulent matter by cauterization with potassa fusa; gradually destroy afterwards, by the use of caustics, the glandular mass which lies at the bottom of the open bubo. To the poultices used after cauterization may be added an ointment, of equal parts of extract of belladonna and mercurial ointment.

17. *Horse-shoe Bubo and Gangrene.*—Horse-shoe and phagedænic ulcers in the groin, resulting from a suppurating bubo, require the dressings mentioned in No. 12. Gangrene: chloride of lime, one ounce; distilled water, three ounces. This lotion is to be used several times a day. Or, powdered charcoal, powdered Peruvian bark, equal parts of each, to be thickly applied to the sore.

18. *Phimosis.*—Inject between the glans and prepuce the aromatic wine with opium, as mentioned in No. 12, and use emollient and sedative applications; if gangrene be imminent, operate.

19. *Paraphimosis.*—Keep the organ raised, and surround it with cold compresses. Bland diet, refreshing drinks; endeavour to reduce or free the constriction by an incision, according to circumstances. After the strangulation is relieved, use emollient and antiseptic applications combined with opium.

20. *Scrofulous Complications.*—Order every day the following emulsion in three equal doses: iodine, three grains; oil of sweet almonds, one ounce; gum arabic, a sufficiency; almond emulsion, three ounces.

SECONDARY SYMPTOMS.—21. Order every day three tumblers of decoction of saponaria leaves, and put into each tumbler one tablespoonful of sirop de cuisinier, (N.B. Sirop de cuisinier: sarsaparilla, borage and white rose leaves, senna, aniseed, honey, and sugar;) and take every day one of the following pills: protoiodide of mercury, inspissated juice of lactuca sativa, of each forty-five grains; extract of opium, fifteen grains; extract of hemlock, one drachm and a half. Mix, and make sixty pills.

22. *Slight Stomatitis.*—To gargle three times a day with the following liquid: decoction of lactuca sativa, five ounces; honey, one ounce and a half; alum, one drachm and a half.

23. *Mercurial Stomatitis.*—To gargle three times a day with the following liquid: decoction of lactuca sativa, five ounces; honey, four drachms; hydrochloric acid, fifteen drops.

24. *Salivation.*—Order every day one drachm of flowers of sulphur, incorporated with honey. As a common beverage, the nitric acid lemonade. Gargle three times a day with decoction of lactuca sativa, five ounces; honey, four drachms; hydrochloric acid, fifteen drops.

25. *Mucous Patches in the Mouth.*—Gargle three times a day with decoction of hemlock, six ounces and a half; bichloride of mercury, three grains.

26.—*Mucous Tubercles around the Anus, (Condylomata.)*—Put twenty leeches to the perinæum Take every evening a small enema of a decoction of poppyheads, cold, and mixed with twenty drops of laudanum. As an habitual beverage, take linseed tea, sweetened with sugar and almond emulsion.

27. *Vegetations.*—Put twice a day on the vegetations the following powder: powdered savine, oxide of iron, calcined alum, of each one drachm. (M. Ricord, as reported by Dr. V. de Meric, *Lancet*, June 24, 1848.)

TERTIARY SYMPTOMS.—Iodide of mercury given to the full extent that the constitution will bear, is the great remedy for tertiary symptoms; and will, indeed, be prophylactic against them, if given at the termination of the treatment of secondary symptoms. We should begin with fifteen grains daily, in some bitter syrup, as syrup of gentian, quassia, or sarsaparilla; and in two or three days increase the dose to forty-five grains daily, and subsequently to a still greater amount. (M. Ricord, p. 253.)

AFFECTIONS OF THE ORGANS OF CIRCULATION.

HÆMORRHAGE.—In cases of *passive* hæmorrhage, not depending upon organic disease, give oil of turpentine in doses of from eight to thirty drops, in almond emulsion. (Dr. J. Percy, p. 203.)

VARICOSE VEINS.—Varicosity of the internal saphena may arise from the aperture in the fascia lata through which the vein passes, being too small to allow of the ready passage of so large a

quantity of blood as is contained in the vein. In this case, practise division of the falciform border of the fascia lata. Make an incision three inches long, by transfixing a fold of skin, and then pass a bistoury directly upwards beneath the crescentic margin of the fascia lata, and divide it to the extent, *e. g.*, of half an inch. (Dr. W. B. Herapath, p. 201.)

AFFECTIONS OF THE EYE AND EAR.

Deafness.—Cases of deafness arising from perforation of the membrana tympani, may be immediately relieved in a most astonishing manner, by adjusting a pellet of moistened cotton wool so as to cover the perforation. It is to be applied in the following manner:—Use a pair of small forceps, weak in the spring, and accurately made, and differing from common forceps, in having the blades not rough at their extremity, but smooth, and rounded off, so that *when in apposition, they may act as a probe.* Having ascertained, by means of the speculum, the precise condition of the membrana tympani, take a small quantity of wool that has been moistened in some fluid without any compression, and pass it by means of the forceps, down to the bottom of the meatus; then disengage the forceps, close the blades, and use the points to adjust the wool at the spot where it produces the best degree of hearing. The adjustment will require some management; but by repeated trials the patient will be able to do it himself, and should withdraw the dry wool and replace it with moist, night and morning, or morning only, as may be found necessary. Instead of using the forceps to adjust the wool, a small silver probe may be used; and at the other end of the probe there may be a small screw, by means of which the dry wool can be withdrawn. As we have now a means of relieving the deafness which attends an open tympanum, perforation of this membrane may be resorted to with a better prospect of advantage than heretofore. It may be employed when there is, 1st, great thickening of the membrane; 2nd, occlusion or obstruction of the Eustachian tube; 3rd, extravasation of blood into the tympanum; it being provided in all these cases, that there is no other way of relieving the disease, and that all the other parts of the ear are healthy. An instrument, which it is thought will be found the best for the performance of the operation, is figured at p. 308. (Mr. J. Yearsley, p. 295.)

An instrument for applying cotton wool to the membrana tympani, or to supply the place of that membrane, is also described by Mr T. Buchanan, (p. 309.)

Dilated Pupil.—*(Mydriasis.)*—To relieve extreme dilatation of the pupil from belladonna. let a pinch or two of powdered ergot be taken like snuff. (M. Comperat, p. 311.)

MIDWIFERY AND DISEASES OF WOMEN.

ABORTION, *Prevention of.*—We must endeavour to ascertain the *cause* of the abortion, and attempt its removal. If the cause be *ovarian* irritation, we should give warm hip baths, not exceeding blood heat, and enemata of the same temperature; apply a plaster of opium to the sacrum, and enjoin the avoidance of coïtus; these precautions must be especially attended to at the *catamenial* or *periodic* dates of pregnancy, for ascertaining which a little table recently published, termed a periodoscope, will be found useful. *Vaginal* irritation being not an uncommon cause of abortion, the most rigid continence must be observed during the whole of pregnancy, by women who have previously aborted; and if we use the plug in threatened abortion, we must take care that it is not too large, and that it is introduced into the upper and roomy part of the passage. *Uterine* irritation, dependent on ulceration of the os and cervix, or retroversion, must be treated by the means calculated to relieve those diseases. *Mammary*, *dental*, *vesical*, and *rectal* irritation, if existing, must also be removed by appropriate treatment. *Morbid conditions of the placenta*, often cause abortion by preventing the due oxygenation of the fœtal blood. We must treat these cases by great attention to the depuration of the blood of the mother, by means of carefully regulated diet, the respiration of pure air, attention to the secretions, &c. The exhibition of chlorate of potash has been found useful by Professor Simpson, by arterializing the maternal blood. To eradicate the abortive diathesis, prolonged continence is especially necessary. Besides this, any source of irritation and any disease of the utero-vaginal passage must be relieved; and such tonics as iron, the cold douche, and cold bathing, must be employed. In very obstinate cases it is recommended to try the effect of a long-continued galvanic current through the spine and sexual organs, or to prescribe small and continued doses of ergotine or strychnine. (Dr. W. Tyler Smith, p. 314.)

BREAST, *Lymphatic Tumour of the.*—Order generous diet and gentle exercise in the open air; and give some preparation of iron, and an aloetic aperient if necessary. When the pain and tenderness are extreme, apply leeches and poultices. If suckling has been long continued, let the infant be weaned. (Dr. J. M. Coley, p. 384.)

DEFORMITY *of the Brim.*—When the use of the long forceps comes into competition with the employment of craniotomy, the former is generally to be preferred. Now, when the pelvis is contracted in its conjugate or antero-posterior diameter, the long or fronto-occipital diameter of the child's head occupies the transverse diameter of the brim. The blades of the long forceps should, therefore, be placed obliquely upon the child's head; one, the posterior, over the side of the occiput; and the other, or anterior, over

the side of the brow or temple; or, in other words, they should be applied in the oblique diameter of the brim, for in this situation there is the most room for them. (Prof. Simpson, p. 346.)

Hæmorrhage, *Uterine.*—In hæmorrhage from polypus, malignant disease, or separation of the ovum or placenta, bitartrate of potash given internally is a useful remedy. (Dr. Silvester, p. 359.)

Passive hæmorrhage may be safely and successfully treated by galvanism. An instrument by means of which this agent may be conveniently applied to the uterus, is described in the text. (Dr. T. E. Waller, p. 360.)

Leucorrhœa.—In those cases of imperfect menstruation, (sometimes treated as leucorrhœa) with sanious or pale secretion from the uterus, and venous bruit, give bitartrate of potash. Dose not stated. (Dr. Silvester, p. 359.)

Menorrhagia.—Give bitartrate of potash. Dose not stated. (Dr. Silvester, p. 359.)

Nipples, *Sore.*—Apply tincture of catechu; or solution of tannin, five grains to the ounce, (Druitt); or equal parts of tincture of galls and compound tincture of benzoin; or the following lotion: ℞. Sodæ sub-bor. ʒij.; cretæ præcip. ℥i.; sp. vini, aq. rosæ, aa. ℥iij. M. This may be applied alternately with the following ointment, or the latter may be used alone: ℞. Ceræ alb. ʒivss.; ol. amygd. dulc. ℥i.; mel despum. ℥ss.; solve ope caloris, deinde adde gradatim, bals. peruv. ʒijss. M. For fissured nipples, nitrate of silver is useful, at a period remote from delivery. (p. 381.)

Apply collodion with a camel-hair brush. (Mr. E. Wilson, p. 280.)

Ovarian Disease.—It is proposed to treat certain cases of ovarian disease by establishing solid adhesions between the tumour and the abdominal walls; effecting a very small ulcerative opening of the cyst through the centre of these adhesions; and so inducing gradual discharge of the fluid, and contraction of the walls of the cyst. The cases to which this method is applicable, are those where the cyst is monolocular, and without any amount of solid deposit. These points may be ascertained by a preliminary tapping, by which we may judge also of the degree of tendency to peritonitis. If, after tapping, the case is thought to be a suitable one, the cyst is to be allowed to refill to half its previous size, and the treatment is then to be commenced. It consists in applying a portion of Vienna paste, so as to produce an eschar of the size of a half-crown, at some part of the abdomen; either at the spot where the fluctuation is most superficial, or, if there be no such spot, in the mesial line, an inch or two below the umbilicus. The eschar is to be left to separate of its own accord, and then, if the thickness of the abdominal walls requires it, another portion of caustic applied to the abraded surface. The second step in the treatment, the formation of a valvular opening into

the cyst, is not to be attempted by surgical interference; it will take place by ulceration spontaneously, a few days or weeks after the separation of the eschar. When the contents of the cyst begin to escape, abdominal pressure must be used; at first, moderate, with a view, not of emptying the cyst, but of giving support: afterwards gradually increased, with a view of diminishing the size of the cyst, now become too large for the quantity of fluid secreted by its lining membrane. The contraction of the cyst will necessarily be slow, and it is of great importance to keep it quite full. For this purpose injections should be used, and their employment should commence when the secretion becomes very fœtid. The point of an india-rubber tube, eight inches long, and funnel-like in shape at its other extremity, is to be gently passed through the opening, into the cyst, and tepid water gradually and gently injected in sufficient quantity, care being taken to exclude air; the patient is then told to strain, when the overplus of the fluid will trickle out through the tube. When the use of injections has been commenced, they should be used regularly, every day before breakfast; and oftener, if the fœtidity of the secretion requires it. As to the other modes of treatment,—small tumours may be cured by giving large doses of the preparations of iodine internally, and using them externally. When the cyst is voluminous, and bulges into the vagina, it may be punctured *per vaginam*, and an india-rubber sound left in its cavity, and moderate pressure applied to the abdomen. Subcutaneous incision into a monolocular cyst is sometimes warrantable. Tapping, as a palliative, is to be deferred as long as possible. And ovariotomy is to be reserved for multilocular cysts, and those monolocular ones which contain much solid deposit. (Dr. E. J. Tilt, p. 362.)

Prolapsus Uteri.—Galvanism will be found useful. A proper instrument for its application is described in the text. (Dr. T. E. Waller, p. 360.)

A new form of pessary for prolapsus, figured at p. 381, is highly recommended by Dr. Weir, p. 381.

Puerperal Convulsions.—In those cases where there is a cold skin, congested countenance, and slow pulse, galvanism will be useful. One wire should be placed behind the neck, and the other over the last lumbar vertebra. (Dr. J. R. Wardell, p. 359.)

Retroflexion *of the Uterus*.—Retroflexion, and the other flexions and versions of the uterus, are by no means of such common occurrence as it has been recently asserted. Many of them may be caused, as well as detected, by the uterine sound, which like Dr. Simpson's uterine support, is anything but a harmless instrument. (Dr. Ashwell, p. 361.)

When used in an unrestricted manner, Dr. Simpson's uterine sound is a dangerous instrument; and the ivory stem used by him as an internal support is also very objectionable. (Dr. Oldham, pp. 371 and 376.)

Suppressio Mensium.—Give a purgative, and then administer tincture of the seeds of stramonium, (stramon. sem. ℥iv.; alcohol. dilut. Oj.) in the dose of twenty drops thrice a day, adding a drop to the dose each day, and continuing it till it produces either dizziness and vertigo, or the catamenia. (Dr. B. Jones, p. 378.)

Ulceration *of the Os Uteri.*—Having wiped the surface dry, paint it over with collodion, by means of a camel-hair brush, and allow it to dry, which will occupy a couple of minutes; apply a second, third, and fourth coating, if necessary, and repeat the application at the end of forty-eight hours. In obstinate cases where there are large granulations, apply nitrate of silver, potassa fusa, or acid nitrate of mercury, in the ordinary way first, and then apply a varnish of collodion over the eschar. (Dr. T. R. Mitchell, p. 339.)

When it is desired to apply medicinal substances for some time continuously to the os and cervix uteri, they may be made into the form of a pessary, with wax and ointment. (Various formulæ are given in the text.) (Dr. J. Y. Simpson, p. 380.)

Uterus, *Hypertrophy and Induration of the.* — Reduce the size of the uterus by the application of four or six leeches to the upper and back part of the vagina once or twice a week. Blister the sacrum or inguinal region, when these parts are the seat of continuous pain; or rub them well with a liniment composed of tinct. aconit. (Fleming) ʒiv.; ext. belladon. ʒss.; lin. sapon. co. ℥iss.; M. Internally give the solution of bichloride of mercury, in doses of one or two drachms twice in the day, combined with vegetable tonics, or chalybeates, and occasionally, if the bowels are torpid, with a little tinct. rhei. Let the colon and the rectum be cleared out daily by a tepid or cold milk-and-water injection; long continued exercise or standing to be avoided; and sexual intercourse abandoned or nearly so. The application of potassa fusa, and other escharotics to the uterus, is much to be deprecated unless there be fungoid granulations about the os and cervix. But with a view of strengthening the structures below the uterus, cold hip baths may be used, and astringent injections efficiently given, such as decoction of oak bark or tormentilla, solution of sulphate of zinc, &c., or vaginal suppositories, made of ten or twelve grains of tannin mixed up with honey. And mechanical support should be afforded by means of a perinæal pad, attached to a firm, elastic, abdominal belt. (Dr. Oldham, p. 372.)

Vaginitis.—Paint the walls of the vagina with several coats of collodion, taking care to allow the first coat to dry well, (which requires two or three minutes at least) before the second is applied. (Dr. T. R. Mitchell, p. 339.)

ASIATIC CHOLERA.

[In the last Retrospect will be found some admirable papers on cholera, especially one by Dr. Bell, of Manchester, also by Mr. French, and others. See Retrospect, Vol. XVII., p. 115.]

Treatment of the Precursory Diarrhœa.—Do not instantly check the diarrhœa, as it is probable that the poison is passing off by the intestines. But moderate the irritation by gentle opiates; act upon the skin and kidneys; give plenty of demulcent drinks, and free pure air; take care not to irritate the gastro-intestinal mucous membrane; and as an antidote to the poison in the blood, give a few doses of quinine, or the vegetable acids. Perhaps the best formula would be, a grain or two of amorphous quinine with two or three grains of tartaric acid and a few minims of laudanum, every six hours. (Dr. Laycock, York, p. 388.)

If the diarrhœa is without pain, give from four to eight drops of naphtha;—not the naphtha of the shops, or acetone, nor the petroleum or Barbadoes tar, but a pure white or rose-coloured naphtha, (not distilled), which is procured, it is supposed, on the borders of the Caspian. It should be given in brandy, white wine or mint tea, taken cold. A single dose is usually sufficient, but it may require repetition in two or three days. If however, pain accompanies the diarrhœa, treat the case simply with opium. (Dr. Andreyeoski, p. 406.)

If the attack begins with nausea, give a gentle emetic, as pulv. ipecac. ℈ij; but if there is only relaxation and uneasiness of the bowels, give four grains of calomel and two of extract of opium followed in two hours by a dose of castor oil. And in about two hours after this, give two tablespoonsful of the following mixture every two, three, or four hours:—℞. Ammon. sesquicarb., ℈i.; sodæ sesquicarb. ʒi.; conf. aromat. ʒi.; tinct. capsici, ♏xxx.; liq. opii sedat. ♏xxx.; mist. camph. ad ℥vj.; misce. And give three grains of hydr. c. cretâ. and three of powdered capsicum every four hours; always taking care not to carry the mercurial too far. (Mr. J. R. Hancorn, p. 423.)

Treatment of the fully-formed Disease.—Calomel.—Give calomel in one or two grain doses, with one or two drops of laudanum every five or ten minutes, for several successive hours, with an occasional omission of the laudanum at intervals. An immense quantity of calomel may thus be taken with the most beneficial effects, and without ptyalism resulting. No auxiliary means are required, beyond supporting the strength of the patient, and applying friction for the cramps. (Dr. J. Ayre, Hull, p. 402.)

Nothing can be trusted but calomel, when once the stools have assumed the rice-water character; therefore five grains are to be given every four hours until a large bilious evacuation is produced. But it is necessary, in the meantime, to restrain the discharge from the bowels, and the best remedy that can be used for this purpose, is the compound sulphate enema, composed of

sulphate of copper, sulphate of zinc, and alum, a scruple of each dissolved in two ounces of cold water. A wine glassful of this solution is to be thrown into the rectum, and the patient instructed to retain it as long as possible: it will probably be returned almost immediately, accompanied by a large discharge of watery fluid. Another wineglassful is to be instantly thrown up: and if this comes away accompanied by a watery discharge, the enema is to be again repeated, until it either returns without any addition, or is retained. Two or three enemata are usually sufficient to check the discharge; they generally occasion considerable tenesmus, which may be relieved, when the patient is freed from the graver symptoms, by an enema of starch and laudanum. If the watery discharge should return, the sulphate enemata are to be again immediately resorted to. If there is discharge of pure blood, or bloody fluid, solution of alum must be injected. Each injection should consist of three drachms of alum dissolved in half-a-pint of cold water; and as fast as one injection comes away, another must be instantly given, so long as there is any appearance of blood. (Dr. C. Patterson, Rathkeale, p. 403.)

Astringents.—Give a pill composed of acetate of lead and opium (℞. Plumbi acet. ℈i. opii gr. j.; pulv. glycyrrhiz. gr. vi.; mucil. acacia. q. s. M. ft. pil. xij.) every half hour, till the rice-water diarrhœa begins to diminish, when the intervals between each pill may be gradually prolonged. (Dr. Graves, Dublin; Dr. Parkes; Dr. Thom, 86th Reg., p. 415.)

Give two grains of acetate of lead and half a grain of opium, every hour or two for a few times. Apply mustard poultices, hot bottles, and frictions of warm turpentine. And give mustard emetics every hour or two, with a view to bring on reaction. (Mr. Hird, p. 425.)

Give tinct. ferri sesquichlor. in as concentrated a form as possible immediately after each dejection. Resort to the hot air bath, and apply the following liniment for the relief of the cramp, not forgetting that it will destroy the linen:—℞. Acid. sulph. fort. ℥iss.; ol. olivæ, ℥iss. M. Do not give brandy, or large doses of opium, but allow the patient the free use of iced soda water, iced champagne, or even small pieces of ice retained in the mouth, and occasionally swallowed. (Mr. J. R. Hancorn, p. 424.)

Give oil of turpentine, which is almost a specific in passive hæmorrhages, and which will exercise a similar power over the serous effusion from the mucous membrane of the bowels. (Mr. J. Moore, Bourton, p. 410.)

Give one-eighteenth part of a grain of strychnine, made into a pill with conserve of roses, every quarter of an hour, and let it be washed down with copious draughts of cold water. The first three or four pills will probably be rejected. (Mr. C. E. Jenkins, p. 423.)

Diluents.—The most important remedies are copious diluents, which relieve, in the gentlest manner, the irritation of the stomach and bowels; and of these the common effervescing draughts seem to answer the purpose admirably, and are extremely grateful. They should be taken *ad libitum*, as the thirst prompts. Treat the cramps in the legs by applying hot fomentations to the loins and stomach. As to other remedies, bleeding alone will not cure the disease, and if the diluent system is resorted to early, bleeding will be unnecessary; but in some neglected cases may require the abstraction of blood, which must always be accompanied by the free exhibition of diluents. (Dr. W. G. Maxwell, Calcutta, p. 393.)

Simple diluents are among the most important accessories of the treatment. (Mr. M. T. Sadler, Barnsley, p. 395.)

Tartarized Antimony.—Dissolve five grains of tartarized antimony in half-a-pint of camphor mixture, and give an ounce every two hours; and urge the patient to drink freely of toast water. As soon as vomiting begins, encourage it with the toast water; and keep the patient drinking and vomiting until the stomach becomes tolerant both of the antimony and the fluid, when the quantity of the toast water drunk may be diminished. When cramps attack the abdomen, apply sinapisms. As soon as a bilious stool or similar favourable sign occurs, omit the medicine, apply warmth to the feet, and give a little arrow root flavoured or not with brandy. The patient will usually fall into a quiet sleep, and the next morning a little castor oil may be given. (Mr. Stott, Manchester; Dr. C. Radcliffe Hall, p. 411; Dr. J. Shearman, Rotherham, p. 418.)

Give three grains of tartarized antimony, and repeat it in half an hour. (Dr. L. Stewart, p. 425.)

Chloroform.—Use external warmth and stimulating applications, and give a glass of hot brandy and water spiced. Put the patient under the influence of chloroform by inhalation, and readminister it immediately, as long as the bad symptoms recur. Give in the intervals small quantities of brandy with water or soda-water, and thin arrow root or milk. Give no medicines of any kind; but bleed gently if the reaction after the use of chloroform is excessive. (Dr. J. Hill, Peckham Asylum, p. 420.)

The value of this plan of treatment is confirmed also by Dr. Clutterbuck and Mr. Garrett, (p. 419.)

Give about six drops of chloroform, with about forty of oil of turpentine, in a little brandy and water; apply sinapisms; and allow the patient to drink freely of water. In half an hour after the chloroform, give five grains of calomel and ten of ox-gall, made into pills. Repeat the draught and pills in an hour or two if necessary. (Mr. P. Brady, Harrow, p. 421.)

The exhibition of two, three, or four minims of chloroform in a little brandy and water, every two or three hours, is also recommended, with some slight adjuvant treatment, by Mr. G. Plimmer, Mr. J. B. Steadman, (p. 422.)

Naptha, &c.—Employ the warm bath, and use vigorous frictions of all parts of the body. And give from fifteen to twenty drops of naptha and if it is vomited, repeat the dose; a second is rarely required if the first be retained. The naptha is not the ordinary naptha of the shops, nor yet the petroleum, or Barbadoes tar; but a pure white or rose-coloured fluid, not distilled, but found native, it is supposed, on the borders of the Caspian. (Dr. Andreyeoski, p. 406.)

Give petroleum, (petroleum Barbadense) or pure hydro-carbon, in the following form:—Take the yolk of an egg, and mix intimately with it a tablespoonful of petroleum; add forty drops of aromatic spirit of ammonia, and equal quantities of brandy and water to fill a wine glass; and this dose may be repeated according to the emergency of the case. (Dr. J. Tunstall, Bath, p. 409.)

Give napthaline (procured from Hooper, Pall Mall East) in one or two grain doses, in the form of pill, along with opium or aromatic confection. The cases in which this remedy is applicable, are chiefly those in which great flatulence and a tympanitic state of the bowel exists. (Mr. J. C. Atkinson, p. 408.)

Miscellaneous.—When a case is verging into the stage of collapse, it is proposed to take from a vein as much blood as can reasonably be abstracted, and then to transfuse warm blood from a healthy subject, and to keep up respiration with a mixture of equal parts of oxygen and atmospheric air, by means of a modification of the mouthpiece of Sibson's chloroform inhaler. (Dr. E. J. Shearman, Rotherham, p. 417.)

Quinine is recommended. (Dr. Henriques, p. 397.)

Camphor and laudanum in small doses, antiseptic fumigations, and stimulating frictions, are recommended. (Dr. Kennedy, Woodhouse, p. 395.)

The resinous extract of Indian hemp, is recommended. (Dr. Willemin, Cairo, p. 425.)

In the stage of collapse the use of long continued galvanic passes through the respiratory and spinal nerves, are recommended. (Sir J. Murray, p. 402.)

Hot air and vapour baths are recommended, and various contrivances are mentioned for making their application cheap and expeditious, by Mr. F. Ward, Dr. R. Chambers, Mr. C. M. Thompson, Dr. Wood, and Mr. H. Hulme. (pp. 425–7.)

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